Croonian Lectures
ON
THE PULSE.

Delivered at the Royal College of Physicians of London, March, 1887.

BY W. H. BROADBENT, M.D., F.R.C.P.,
PHYSICIAN TO ST. MARY'S HOSPITAL, CONSULTING PHYSICIAN TO THE LONDON FEVER HOSPITAL, AND PRESIDENT OF THE CLINICAL SOCIETY.

LECTURE III.

MR. PRESIDENT AND GENTLEMEN,—Examples of the effect upon the pulse of diseases of the nervous system might be multiplied indefinitely, but I propose to ask your attention to the converse of this—namely, to effects produced on the brain by abnormal conditions of the circulation.

The nutrition of the brain, as of all parts of the body, is dependent upon the supply of an adequate amount of healthy blood, but the functional activity and efficiency of the brain is even more dependent upon the blood-supply than its nutrition, and is influenced by it to an extraordinary degree, so that blood which would maintain the structural integrity of the brain might be altogether unfit to minister to its functions. The presence of alcohol in the blood, for example, does not interfere with the nutrition of the nerve centres, but it deranges their action, and poisons generated in the system or retained excretory matters may have a similar effect. The liberation of nerve force has been represented as an explosive action, and this implies the presence in the nerve cells of a substance ready, on the application of the proper stimulus, to combine instantly with the oxygen brought by the blood. The formation of such material, its maintenance at a given state of chemical tension, so to speak, which differs in the different centres, in the cortex, in the central ganglia, and in the medulla and cord, is not paralleled by any other nutritive operation. There is, moreover, the further requirement of a due supply of oxygen.

An illustration of the relation between cerebral functions and the circulation is seen in the anæmia of the cortex of the hemispheres during sleep. This bloodlessness is essential to sleep, and, if it can be induced, sleep follows. It is not clear, however, whether it is primarily the shutting off of the blood which determines and compels sleep, or the exhaustion of the nerve cells and the periodic cessation of activity organised in the experience of the nervous system by the succession of day and night, which disposes to sleep, and provides for it by causing the cortical arterioles to contract so as to produce the anæmia. Sleeplessness is extremely common, and may be due to a great variety of causes—to excitement during the day or in the evening, to grief or anxiety, to exhaustion or overwork, especially work of an intellectual kind carried on far into the night, to late meals, errors in diet, indigestion and flatulence, or other functional derangements, and to tea or coffee. On the recognition and removal or avoidance of any such disturbing influences the sleeplessness will disappear. We are frequently called upon, however, to relieve habitual sleeplessness which cannot be referred to any of the above causes, and in many instances it is associated with abnormal conditions of the circulation. Not to speak of heart disease, all forms of which are prone to disturb or interfere with sleep, or of palpitation, which is apt to come on at night, there are two distinct conditions of the circulation to which sleeplessness is very often due. One is the state of high tension, absolute or virtual. There may be little beyond the sleeplessness of which the patient complains, or the loss of sleep may merely be one of a long train of symptoms—depression, apprehension, loss of memory, want of energy, and the like. The artery at the wrist may be large or small, but it is full between the beats, and can be rolled under the finger; the pulse may be long and gradual, or somewhat abrupt in its beat, and ending suddenly, according to the condition of the heart. It appears to me probable that the cause of the sleeplessness in the class of cases under consideration is the inability of the arterioles of the cerebral cortex to overcome the excessive blood-pressure within them, and shut off the blood so as to induce the anæmia requisite for sleep. In common with the peripheral arteries generally, their muscular walls are all day putting forth an abnormal amount of contractile force, and at night are unequal to the further task of exercising sufficient additional contraction to narrow the channels to sleeping point. In such cases sleep is often at once procured by reducing the general arterial tension, and a mild mercurial aperient is the most efficient hypnotic. The cases are numbered by scores in which I have found this line of treatment efficacious in habitual sleeplessness, many patients having been rendered independent of sedative draughts to which they had been driven. At first it is not unusual for the patient to suppose that a new and powerful opiate has been given, and the good effects do not wear out by repetition. It is not by unloading the bowel that the aperient acts; it has often to be given to induce sleep when the bowels are acting regularly and freely; and it is to be remarked that it is within an hour or two of the pill having been taken, and many hours before an evacuation results, that the patient sleeps. The general intra-vascular pressure being lowered, the cortical arterioles are no longer resisted by the pressure within them, and they can respond to the call for exclusion of the blood from the hemispheres. The desired effect may often be attained by other means—by a hot bath, by the sitz bath and wet bandages employed in hydropathic establishments, by standing in cold water and then rubbing the feet well with a rough towel, and by a variety of other measures, which either relax the cutaneous vessels generally, and so lower the arterial tension, or set up a local hyperæmia which diverts the blood from the head. A method of courting sleep, which I have known to be adopted by subjects of high arterial tension, is to lie with the back of the neck on a hot-water bottle. Sometimes, however, the object is defeated by some collateral effect—for example, as when a hot bath sets the heart beating violently, and, when successful, such measures often having the defect of dealing with the effect and not removing the cause.

An opposite state of the circulation, extremely low tension, may be the cause of sleeplessness. It is more common after middle life and in men of sedentary occupation, and may be traceable to overwork or anxiety, or simply to close attention to business and neglect of holiday. It is not often that there is excess in eating or drinking; more frequently the patient is distinctly abstemious. Without apparent cause he begins to lose his sleep at night. In the day-time, however, he is disposed to sleep, and, not unfrequently, unless engaged in actual work, he drops asleep at any moment; not only after dinner, when sleep in such cases is irresistible, but when reading his newspaper in the morning after breakfast. Not unnaturally, it is supposed that the after-dinner nap spoils the night's rest, or that the bad night causes the drowsiness during the day, but attempts to rectify this state of things by preventing sleep after dinner and similar measures fail. The sufferer may try to secure a good night by going to bed soon after dinner, but at this time, as at the usual hour for retiring, as soon as he lies down he is wide awake, and so remains. After a time it will be discovered that it is position which induces or prevents sleep. In the sitting posture sleep is almost irresistible, in the recumbent position almost impossible. The patient will sometimes get out of bed in the night and sleep in his chair, as we see sufferers from advanced heart disease. Under such circumstances I have found the circulation unstable; the pulse, during the same interview, at one time short and weak, and at another presenting the characters of virtual tension—that is, full between the beats, but compressible, sudden and not sustained; and the power of the heart low. There is a want of tone in the muscular tissues of the arterioles and a want of driving power in the heart, and the distribution of the blood thus becomes unduly influenced by gravity. In the sitting position, when the heart is not stimulated by exercise, nor afflux of blood to the convolutions determined by mental work, the blood is not lifted to the height of the brain with sufficient energy, the contractile tendency of the cortical arteries is not opposed by intra-vascular pressure, and sleep-producing anæmia of the hemispheres results. On the other hand, this same want of tone in the arterioles allows them to be distended by the increased pressure of the blood within them which attends the horizontal position. In such cases change of air will often put an end to the sleeplessness at once, and

the appropriate remedies are vascular tonics—iron, acids, strychnine, and digitalis.

Convulsions and the pulse.—Conditions of the circulation indicated by the pulse are unquestionably among the causes of convulsions. The brain responds by convulsions to a great variety of disturbing influences: to direct irritation of the cortex, as has been demonstrated by experiment, and is illustrated by spiculæ of bone, tumours, meningeal hæmorrhage, &c.; to irritation of lower centres and tracts, such as the cerebellum and its superior peduncles, or in the interpeduncular space, and to reflex irritation of the most varied kind; to poisons of different kinds, but especially to the poisons of specific fevers, such as small-pox, scarlatina, or measles.

With regard to such causes of convulsions as concern us from their relation with the pulse, experiment has shown that convulsions may attend exactly opposite states of the circulation. The final phenomena of death from rapid hæmorrhage when the cerebral vessels are empty and the pressure presumably at a minimum are convulsions, and convulsions occur in death by asphyxia when the blood-pressure is high. These extremes probably meet in the production of stasis of the cerebral circulation, and it seems to me that we have clinical illustrations of convulsions produced by unduly high arterial tension on the one hand and by excessively low arterial pressure on the other.

The cranium being a closed cavity, the total volume of its contents, brain-structures, blood, and cerebro-spinal fluid, must be a constant quantity. The effusion of liquid into the ventricles or meninges often found ofter death shows that some sort of compression and shrinkage of the brain substance is possible, but whether this is at the expense of the blood in its capillaries, or of fluid in the perivascular spaces, or of interstitial fluid, cannot be stated definitely; since, however, there may be greater appearance of vascularity in the sulci and white matter at the same time, it cannot be by exclusion of blood that the intra-ventricular or sub-arachnoid fluid makes room for itself. But whatever may be the way in which the brain-substance accommodates itself to effused fluid, it is not to be supposed that it is compressed into smaller compass at each pulsation of its vessels. This being so, either the blood must escape by the veins exactly in the same amount and at the same time as it enters by the arteries, and therefore more or less in a pulsatile manner, or there must be some shifting to and fro of cerebro-spinal fluid between the cranial and spinal cavities—that is, the expulsion of a certain amount of fluid from the cranium into the spinal canal with each arterial pulsation, and a gradual reflux in the interval. But the spinal canal is also a closed cavity, and, although its walls, being only ligamentous between the vertebræ, are not so rigid as the bones of the skull, there is no provision for variations in its capacity, while the arteries of the cord and its meninges will be distended at the same moment as those of the brain, which would tend to resist the passage of fluid from the cranial to the spinal cavity. The to-and-fro movement of cerebro-spinal fluid, then, which has been postulated as an easy explanation of some of the difficulties with regard to the cerebral circulation, cannot be admitted, and it must be the case that, exactly as the blood enters the cranium by the carotids and vertebral arteries, it leaves it by the internal jugular veins. The movement of blood in the internal jugulars has, in fact, been found to be pulsatile. I have pointed out in my first lecture that neither the expansion of the arteries nor the onward movement of the blood is as great as is usually supposed, and there is a provision both in the carotids and vertebrals for moderating the current (which is present in a still more marked degree in animals which feed on the ground); but, with all this, the intra-cranial circulation is carried on under peculiar difficulties, and any interference with the general circulation may tell with special influence upon it.

In the eye the circulation is under much the same conditions as in the brain in so far as the effects of high intra-vascular pressure are concerned—the sclerotic being unyielding; and the changes which are known to take place in the retina in renal disease have more than a mere diagnostic or clinical interest. They throw light on changes occurring in the brain, and study and investigation in this direction will be well repaid. We have retinal as we have cerebral hæmorrhages. It is possible, again, that there are intra-cranial conditions like in kind to those of the choked disc, if different in degree, and there may be changes in the brain substance corresponding to the white spots in the retina. All these are, in my opinion, attributable to pressure effects rather than to blood deterioration. Glaucoma, which in my small experience has always been associated with high pulse tension, and which I believe to be an effect of intra-vascular pressure, may also have its analogue in the cranium.

Be this as it may, there cannot be any doubt that the intra-cranial pressure varies with each heart beat and with all variations of the blood-pressure in the arteries or veins. The brain would pulsate if it could, and does pulsate whenever a part of the cranial vault is absent or yielding. The fontanelle of an infant beats with the pulse, rises and falls with the respiratory movements, is tense and prominent when the child cries, hollow when it is asleep, is full and firm when the child is well, depressed when it is weakened, say by diarrhœa; and the same fluctuations can be seen at a trephine opening in the adult skull. The same pressure fluctuations which give rise to the pulsation and varying tension of the fontanelle will, in a greater or less degree, tend to compress the cortex of the hemispheres against the vault of the cranium; and it is conceivable that the compression might be such as to interfere with the free passage of blood through the pia mater of the convolutions, or to flatten more or less the veins which run on the surface of the hemispheres to the longitudinal sinus—it might, indeed, arrest momentarily the cortical circulation. Blood stasis in this situation, from pressure against the cranial vault, must occur when the convolutions are flattened by effusion into the ventricles in tubercular meningitis, and it is not unreasonable to suppose that the convulsions and loss of consciousness which mark the final stage of this disease coincide with this event. But there are not wanting evidences of the production of momentary arrest of the cerebral circulation by comparatively slight temporary causes. Some years since I met, at a scientific congress, a distinguished French surgeon who at the age of fifty-five or sixty was suffering from whooping-cough, and at every paroxysm dropped down unconscious; and I have met with a case in which for many years the patient, who was the subject of chronic bronchitis, fell down with momentary loss of consciousness and slight convulsion whenever he coughed, and this too quickly for the production of cyanosis. In these cases the obstruction would take effect by backward pressure through the jugulars. Short of any such result as loss of consciousness, it is not uncommon for the respiratory concussion attending the act of coughing to be felt as severe pain in the head.

A gradual encroachment on the capacity of the cranial cavity would exert a very similar influence on the cortical circulation by pressure from without to that which I am assuming might be the result of pressure from within, and the effects of such an occurrence are exemplified in the following case seen with Mr. Brend of Kensington. The patient, a lady aged about thirty-six, had enjoyed good health all her life, and had had children, when she began to be subject to fits. She was seen by various physicians, and different opinions were given as to the character of the attacks; for the most part they were considered to be hysterical. She was subject to headache and confusion of thought, but not more so than is common; there was no vomiting. When I was consulted she looked well, was stout, and had a good colour, and was discharging all her family and social duties, though with effort. Just as she had taken off her dress to facilitate an examination of the chest, an attack came on which we were so fortunate as to witness. She turned pale and lost consciousness, there was a slight quiver of the muscles of the face and movements of the arms, but the most striking fact was a complete arrest of the heart for a sufficient time to cause us serious anxiety. This prevented us from adopting the opinion previously given, that the fits were of no importance, and our prognosis was soon afterwards verified by the patient's death in one of the attacks. The only morbid appearance found was an extraordinary thickening of the frontal bone, which was as dense as ivory, and more than half an inch thick at the lower part, gradually thinning towards the coronal suture. The inner surface was smooth, and the dura mater little changed.

The following are examples of convulsions associated with high pulse tension.

A medical friend called on me one morning ten years since, at the bidding of his wife, as he told me laughingly. He said he had had some sort of fainting attack, but that he was perfectly well. His forehead, however, was covered with minute ecchymoses, and it was obvious that he had

had severe convulsions. He was forty-two years of age, had lived freely and carelessly, but was not intemperate; there was a doubtful history of syphilis, and twelve months previously he had had a severe fall on his head. He had very high tension of the pulse. I was summoned to him early next morning, and found that he had gone from one convulsion into another for the greater part of the night, of so severe a character that artificial respiration was required at the end of each attack. I had no hesitation in attributing the convulsions, the first and last he had ever had, to the state of the circulation, and the patient was bled to about thirty ounces. He had the last convulsion as the blood was flowing, made a rapid and complete recovery, and has had no attack since.

In another very similar case, also that of a medical man, aged about fifty, seen three years since, I did not see the convulsions, which had been very violent, but the assurance I felt justified in giving, from the history and from the state of the pulse, that no recurrence need be apprehended if the tension were reduced by appropriate diet and treatment, has been verified up to the present time, and the patient has improved greatly in general health.

A third case, that of a lady, aged at that time forty-nine, came under my observation in May, 1878. She was stout, over-fed, and had marked tension of the pulse, which appeared to be taking effect on the left ventricle. She was said to have albuminuria, but I found no albumen in the urine, and the specific gravity was normal. I was consulted on account of severe and repeated convulsive attacks of an epileptic character, which came on two or three times a week, sometimes in series of six or seven. The convulsions speedily ceased under treatment by saline aperients, which lowered the vascular tension, and she remained free from them until 1885, when she had cerebral hæmorrhage and hemiplegia, and she died late in 1886 from another attack, attended with convulsions.

In December, 1885, a gentleman aged sixty-five, working hard as a teacher of music, consulted me on account of convulsions, which had occurred in the previous July before breakfast, and on December 1st after dinner. On the latter occasion there had been sudden loss of consciousness, and a fall, in which a cut on the head had been sustained. He looked and felt well, had a fresh colour, the appetite was good and the bowels regular, and he slept well. The urine was copious, had a specific gravity of 1015, and contained neither albumen nor sugar. The pulse was tense, but short; the first sound of the heart short, the aortic second accentuated. The condition of the circulation was that of virtual tension. A mild blue and colocynth pill was ordered to be taken once a week, and arsenic and nux vomica prescribed as a tonic. In March, while stooping after a heavy meal, he fell forwards and was unconscious for a few seconds, and this is the only attack he has had.

Other illustrations might be given, but I will only refer to one more which I related in my address as president of the medical section of the Brighton meeting of the British Medical Association. The patient, aged thirty-seven, came under my observation in November and December, 1885, suffering from headache and oppression, and was found to have an unusual degree of arterial tension; and shortly afterwards I was called to him in consultation with Dr. Wilbe, when he was almost unconscious, overwhelmed apparently by a sense of pressure in the head and exhibiting violent synchronous contractions of the pectoral and abdominal muscles. The pressure in the arteries was extreme, and the incompressibility of the pulse surpassed anything in my experience. The patient was bled with good effect, but repeated free calomel purging was needed to bring down the tension and complete the recovery. There was an early stage of contracting kidney in this case, but no such change as to give rise to uræmia.

The convulsions which sometimes occur months or years after an attack of hemiplegia have, in my experience, always been associated with high tension, and have often been prevented from recurring by treatment directed against this. In a brain damaged by hæmorrhage, which has left a cicatrix, the circulation is more easily deranged to a point attended with symptoms than before. It may be considered as proved that, in some way, such a modification of the cerebral circulation may be produced by high arterial tension as is capable of giving rise to convulsions; and, as I have already said, it is, in my opinion, through the intervention of high arterial tension that uræmic convulsions are brought about. There may be extreme uræmic intoxication, ending fatally by coma, without convulsions; urea, the ammoniacal products of its decomposition and the forms of nitrogenised waste, which may be supposed to accumulate in the blood in renal disease, do not excite convulsions when injected into the blood. These facts seem to show that it is not simply and directly by the presence of renal impurities in the blood that the convulsions are excited. On the other hand, there are the facts that uræmic convulsions are most common in that form of kidney disease in which high arterial tension is most marked—the contracted granular form,—and that they do not occur in the absence of, at any rate, a certain degree of tension. But the consideration which carries perhaps the greatest weight is the remarkable effect of bloodletting in uræmic convulsions. The status epilepticus is cut short, the coma abbreviated, and associated symptoms relieved. These effects, which are remarkably constant, cannot be from elimination of toxic matter; the blood left in the vessels will be both more watery and more impure from resorption of liquid from the tissues. They can scarcely have any other cause than diminution of the volume of blood and lowered pressure in the vessels.

In acute renal dropsy with convulsions a venesection may not only arrest the convulsion, but may exercise a favourable influence on the disease, and in chronic Bright's disease, nearing a fatal termination, bleeding may prolong life and change altogether the mode of dying from convulsions and coma to a quiet asthenia. Illustrations of the association of convulsions with low arterial tension are less common, but I have seen in a child of twelve, belonging to a family in which the pulse tension is low, and who has the family pulse, a momentary convulsion during vaccination. There was no nervousness or fear, but, on the contrary, the operation was regarded with interest. The child, however, dropped as if shot, with a slight general convulsion, and then immediately got up again, looking very much astonished, but not otherwise affected. In another low-tension individual, a young man of remarkable courage, the application of a few leeches to the ankle, which had been injured rather severely, was followed by syncope, emergence from which was attended with brief but sharp general convulsions.

In the following case, seen first with Dr. Godson, Mr. White, and Dr. Kane, and later with the latter gentleman, the association of convulsions with an extremely low pulse tension and their dependence upon a feeble circulation seemed to be very clear. The patient, a lady aged about twenty-six, florid and healthy, was confined on Aug. 3rd, 1886. Second confinement; previous one normal. Three weeks before labour she had phlebitis of the right saphena vein, with great pain, some pyrexia, but little œdema; it terminated favourably in about fourteen days, leaving a hardened vein. Labour natural. Some membranes were retained, but gave no signs of their presence till the seventh day, when the discharge became offensive. There was pain over the abdomen and slight rise of temperature. The uterus was washed out with Condy's fluid, and the next morning the pain had disappeared. A rigor followed the injection of the uterus, and the temperature rose to 105° F. The discharge continuing fetid, injections were repeated, and the retained membranes came away. An offensive discharge persisted for a day or two, after which the lochia became sweet and normal. The milk stopped fourteen days after labour. From the first rigor dates the commencement of the high temperature. Daily it rose to 104°, 105°, and even 106°; but, at the same time, it invariably fell to normal some time in every twenty-four hours. There was no regularity in the periods of high and low temperature; some days it would rise rapidly to the maximum, and after an hour would fall as rapidly; on other days it would remain about normal most of the day. The pulse, always weak, was most rapid and irregular, sometimes quite uncountable. Terrible rigors occurred almost daily, generally commencing when the temperature was low, and invariably followed by rapid rise of temperature. The patient suffered comparatively little from the high temperature, had no delirium, and seemed to be more comfortable than when the temperature was normal, though the weather at the time was extremely hot. On the seventeenth day after labour, phlebitis occurred in the right saphena. This phlebitis continued to give trouble, on and off, for another ten days, and there was considerable swelling of the ankle. The rigor and temperature continuing unchanged, in spite of all remedies, it was decided, on Sept. 15th, forty-three days after labour, to remove her to another house.

There was the more pressing reason for this, as an expert had decided that sewer gas entered the house. She bore the move well, and for a time seemed to improve. She had some slight shiverings, but no more rigors. For several days the temperature never rose above 102°. She had numerous small boils. On the sixth day after the move (Sept. 21st) her temperature rose suddenly to 106°, fell again to normal, and in the evening rose again to 104°. She did not seem worse in any other way. About 10 P.M. I was suddenly summoned, the messenger saying she was dying. I found her sitting up in bed, with very flushed face and widely dilated pupils; she appeared quite unconscious, with gasping respiration, and very rapid and tumultuous action of the heart. I diagnosed cardiac embolism. Soon after my arrival she fell back and passed into a terrible convulsion, face turned to the left, arm drawn up, and legs extended and rigid. This lasted some minutes, and was followed in half an hour by a second, and again, before morning, by a third. After the convulsions, the left arm seemed paralysed, but this passed off before morning. She was very prostrate, and moaned a great deal, and if moved screamed out and applied her hand to the right side of her head. No inequality of pupils; passed urine and motions in the bed. Mental condition very excited: at first aphasic and unintelligible; afterwards noisy—singing, crying, and praying. After this she sank into a very depressed condition, with constant tendency to failure of the heart. The slightest attempt to sit up caused giddiness and slight convulsion. She had to be constantly watched, and at times even artificial respiration had to be resorted to. Face sunk, and whole aspect of impending death. Temperature 104°; pulse utterly uncountable. Such was her state on Sept. 26th, fifty-four days after labour. The case was considered hopeless, but it was determined to persevere steadily with large doses of tincture of muriate of iron and digitalis in gradually increasing doses. The result was highly satisfactory. The patient rallied and steadily progressed from this date. Quantities of small boils appeared, and gave her much pain. Delirium continued for some days, and she had some delusions. The slightest attempt to sit up brought on a slight convulsion. The temperature never again rose above 102°, and in a very few days fell to normal, and remained at that. Ten days after the first convulsion she had another severe one, followed by a return of the mental disturbance. She was free from attacks, except slight ones, for about a fortnight, when she had another severe attack, then an interval of three weeks, and a series of terribly severe ones lasting six hours. It being thought that the convulsions might be due to an attempt to restore the catamenia, attention was turned in that direction, and after some time the menstrual flow was established, ushered in by several slight convulsions. All this time her progress to health had been continuous, with the exception of a slight pneumonic attack, with some fever and cough, which disappeared after she had coughed up a patch of deep rusty mucus. She had numerous slight convulsive attacks, generally on waking up from sleep; but they left no after-effects, and she steadily improved until Jan. 26th, six months from the commencement of her illness, when she was well enough to be moved to Hastings, and underwent the journey without any fatigue or after bad result. She is now in capital health; but her pulse has a tendency to become irregular, and she has occasional attacks of threatened convulsions. The above account has been supplied to me by Dr. Kane. I first saw the case on October 9th, when the pyrexia had been overcome and the convulsions had set in, and had no hesitation in referring them to the exhausted state of the heart, which could not be felt, and could scarcely be heard, while the pulse was all but imperceptible. The fact that the patient could scarcely be raised in bed without bringing on an attack of convulsions was of decisive significance.

I have at present under observation a gentleman, aged fifty-two, who consulted me on account of shortness of breath on going upstairs, and especially on going up the steps from the railway station. He had become so nervous on the subject that his heart began to palpitate and his breath to go before he came to the foot of the stairs. He had palpitation also occasionally at night. He looks the picture of health and younger than his years; is stout and of rather high colour; eats and sleeps well; and has a regular action of the bowels. He rides a tricycle, and has much fresh air and exercise. The pulse is frequent, 90 to 108, small, short, and extremely compressible. The heart is partially covered by lung, does not appear to be enlarged, and gives no impulse or apex beat; the sounds are short and approximated, the second following the first too quickly. The first sound is audible, not only at the apex and right second space, but also in the neck, where both sounds are remarkably distinct. He spoke of having had a fainting attack, and when this was inquired into it was described as having occurred as follows. It was in August, and he had had a tricycle ride, had washed and changed, when he thought he would like a glass of beer, which he had not tasted for years. Shortly afterwards he felt a peculiar tingling in his feet and had just time to lie down when he lost consciousness, and did not come to himself for forty minutes or more. This could not have been a syncopal attack, and, whether convulsions occurred or not, was epileptoid. It was further learnt on inquiry that he had had several similar attacks within the last few years, always beginning with the tingling sensation in the feet, and attended with complete loss of consciousness, lasting on an average twenty minutes. He had had no fits of any kind as a boy, or until the occurrence of those referred to.

I am not without hope that a careful study of the pulse, and of conditions of the circulation made known through it, may be of service in furnishing indications for the treatment of epilepsy. It is certainly attended with interest, and I think it throws light on different forms of epilepsy, and serves as a guide in prognosis. Epilepsy is apparently the result of instability in the highest nerve centres, the cells of the cerebral cortex permitting of an indiscriminate general or partial discharge upon lower centres of nerve force, which normally ought to be set free, only in definite degree and in well-defined direction, in response to given stimuli. Such instability is obviously a nutritional defect, which may be due to the inherent want of constructive energy in the nerve cells themselves, or may be the result of blood which cannot furnish the proper pabulum, or of an inadequate supply of blood. Even in the case first supposed, a regular and ample supply of blood, under sufficient pressure to cause a due exudation of nutrient material and of proper composition, will be important, while in the other conditions supposed they will be remedial. But, given more or less of instability, this does not of itself start the convulsive explosion; some exciting cause must be applied. At one time this was supposed to be arterial spasm in certain convolutional areas; but this hypothesis, which never seemed to me to be tenable, has gone out of fashion. There are, however, facts which seem to show that circulatory conditions have much influence in determining the occurrence of attack: for example, the great frequency with which fits come on in the night, sometimes on first going off to sleep, when the horizontal position and the anæmia of the cortex attending sleep produce great changes in the intracranial circulation; or more frequently towards morning, when the general circulation has slackened down, as it does during sleep. Another favourite time for attacks is soon after rising in the morning, when the general circulation has slackened, and circulatory changes of a reverse kind take place.

It is not my intention to discuss the questions which might be raised on the subject here alluded to, but I desire to call attention to a provisional conclusion to which I have been led by my own limited observation. This is, that in essential epilepsy—the epilepsy which comes on during adolescence, the epilepsy met with in neurotic families, and in which the nerve cells may fairly be assumed to be inherently unstable—the arterial tension is low and variable or fluctuating. I am unable to affirm that when the attacks are suspended, as they may be for months, the pulse tension is improved, but it is worthy of remark that pregnancy is not unfrequently attended with immunity from fits, and, as is well known, one effect of this condition is high tension in the pulse. On the other hand, when the pulse tension is decidedly and constantly above the average, it has seemed to me that the epilepsy has been amenable to treatment. Senile epilepsy is, according to my experience, associated with high tension, and scarcely ever fails to yield to a regulated diet with a restricted amount of animal food and little stimulant, aperients and other eliminants being given, according to the requirements of the particular case. Epilepsy with high arterial tension often comes on at a later period than the epilepsy, which has its source in a radical weakness of the nervous system, and, in most of the cases I have met with, the first fit has occurred after the age of twenty, and not uncommonly there have

been peculiarities, such as a number of attacks close together, with long but irregular intervals, or some well-marked exciting cause. The fits may, however, date from the usual age at which epilepsy sets in. Many years since, a surgeon-major in the army brought his son to me on account of epileptic attacks, which had compelled him to leave the navy. He was a fine, strong, healthy-looking lad, and had a large pulse not easily compressed. Under treatment the fits, which had been so frequent, ceased to come on. He studied for and got into Sandhurst, obtained a commission in an infantry regiment, and has since served through the Afghan campaign. So far as I know, he has only had two attacks since he entered the army: one in Afghanistan, when, together with trying work, he had bad food and water; and another in Ireland, after great fatigue and a bout of dissipation.

I have several times seen violent maniacal delirium associated in such a way with convulsions as to suggest that a minor degree of the disturbing influence which caused convulsions had given rise to the maniacal excitement—after bleeding, for example, for uræmic convulsions, before and after, or apparently instead of uræmic convulsions—in syphilitic disease of the brain. In the following case the connexion between the state of tension of the pulse and ungovernable excitement was recognised by several observers over a long period. The patient was under the care of Dr. Ranking at Tunbridge Wells, and Dr. Marcus Allen at Brighton, and in town under Dr. Seton and Dr. Coates, with whom I saw her weekly from March to July, 1884, and again in March, 1885. Dr. Ranking, who has kindly supplied me with the particulars, was called to her in May, 1882, when she was convalescing from a third attack of slight (left) hemiplegia. She was very nervous and apprehensive, and had dilatation of the heart, with an unstable pulse of virtual tension. During the summer she had several anginoid attacks, which were relieved at once by nitro-glycerine, and in the winter attacks of congestion of the lungs, with partial suppression of urine and albuminuria. One day in July, 1883, she became suddenly excited, with delusions, which lasted some time, but went off after one-hundredth grain of nitro-glycerine, and she slept. Later in the summer she got into an excited, unsettled, suspicious, and violent state, which persisted, together with high tension of the pulse. Once she was comatose for twenty-four hours, but recovered after nitro-glycerine, and at once became maniacal. In the winter of 1883-84 she was under the care of Dr. Marcus Allen at Brighton. It was found by observation that her mental condition was always worst when the pulse tension was high, and that the only way of keeping it down was to cut off all meat and feed the patient chiefly on milk. This was confirmed by our experience when she was brought to town. When the tension was high she was suspicious, abusive, violent, and unmanageable. When it was normal she was cheerful and tractable. Mercurial aperients were constantly needed in order to keep down the tension and regulate the bowels. Ultimately she died, in March, 1885, with symptoms of meningeal hæmorrhage.

With advancing years there comes a liability to many forms of cerebral affection. Some are examples of structural change which are clearly traceable to interference with the normal blood-supply. Such changes are local or general softening from thrombosis of individual arteries, or general obstruction to the blood-supply from atheroma, affecting all the cerebral arteries. The local arterial change is not the sole factor in the production of the lesions. A state of blood which renders it prone to coagulate or deposit fibrin will predispose to the formation of a thrombus at any point where the walls of the artery are diseased, and want of propulsive power in the heart, or other cause of languid movement in the blood, may antedate the occurrence of degenerative changes attributable to widely distributed disease in the vessels. But an impeded cerebral circulation may, in course of time, so far modify the nutrition of the brain as to give rise to functional affections without structural lesions; and this, in my opinion, is the mode of causation of some forms of insanity which come on late in life—such, for example, as senile melancholia. The term senile may have two meanings—it may designate an age, or be descriptive of a kind of change. The term senile is unobjectionable if it is meant to apply simply to the period of life at which this affection is met with, but it is often understood to mean a certain character of change, and its frequent employment to designate degeneration has led to the common idea that senile and degenerative are convertible terms. This does harm in two ways. Senile changes, if degenerative, are irreversible, and if this view is taken of dementia or melancholia, there will be no object in careful investigation of associated conditions, no other cause than senile decay will be looked for, and no individual treatment will be adopted based upon the peculiarities of different cases. Furthermore, the reproach of insanity or of neurotic tendencies may be attached to families when the derangement of the cerebral functions may be as much a result of vascular disease as cerebral hæmorrhage. A family liability to melancholia may consist in hereditary high tension of the pulse, just as a liability to apoplexy may be due to family gout. Now the complete recovery witnessed in many cases of melancholia is proof that there cannot have been any structural degeneration, and an example like the following may be worth relating.

Some two years since I was asked to see, periodically, a gentleman, aged about sixty, who had for four or five years been under the Commissioners in Lunacy on account of melancholia. He had had delusions as to conspiracies against his life, but such delusions as remained related chiefly to wilful and malicious injury inflicted upon him, and attempts to destroy him in an asylum. He spent nearly all his time in bed, scarcely ever left his room, and never went out of doors. He was well nourished, and, except that he was etiolated by his long confinement to the house, looked well; but the pulse was extremely small, soft, and short, and the action of the heart extremely weak. He had eczema, and suffered from constipation and want of appetite, and treatment was prescribed for the relief of these symptoms. His general health improved, but his mental condition remained much the same, and, in particular, the death of a son made little impression on him. In June, 1886, he suddenly shook off all his delusions, and became perfectly sane and cheerful. With this the pulse improved, but never reached an average volume or tension, and in October he remained well, and, after examination by Dr. Maudsley, was discharged from his lunacy. Unfortunately, on Feb. 24th of this year he became aphasic from thrombosis of the vessels supplying the cortical speech centre.

Pulse and melancholia.—The connexion between melancholia and its allied mental states and conditions of the circulation is more direct and decided than can be traced in epilepsy. An unbroken series of gradations can be traced from the irritability and depression of spirits, attending functional disorder of the liver, up to complete melancholia with delusions. In a case of temporary hepatic derangement, the state of the temper and spirits might be attributable to the retention in the blood of the impurities which tinge the eyes and complexion, this acting as a poison; or to some reflex influence, inhibiting cerebral functions, or deranging the cerebral circulation by setting up contraction of some of the arteries. When, however, the mental depression is more pronounced and persistent, these explanations are found not to apply; there may be, in the first instance, constipation, a furred tongue, sallow complexion, large liver, &c. But when these evidences of deranged function are removed the mental condition does not clear up. If the symptoms, therefore, are due to any somatic cause and are not the outcome of a primary cerebral affection, this cause is something more persistent than the functional derangement or reflex disturbance mentioned. This has appeared to me to be protracted arterial tension, or, if it is not itself the cause, it is at least the index of the condition of the state of system on which the mental condition depends.

The method by which high arterial tension may influence the cerebral functions may be conceived to be as follows. The resistance in the peripheral vessels calls for increased contractile force on the part of the left ventricle, and there is a response by a certain degree of hypertrophy. In the course of years, however, the resistance increases, degeneration of the capillaries and thickening of the arterioles being superadded to the original loss of due relation between blood and tissues, while the heart no longer gains in strength. With, then, the same or somewhat diminished driving power and the resistance increased, there will be a slower onward movement of the blood. The pulse may be equally strong, may even seem to be more incompressible, but the capillary circulation will be sluggish. This will be the case throughout the system, but it will not give rise to appreciable effects in most of the structures and organs; in the brain, however, as has already been said, functional activity and efficiency are absolutely dependent upon a due supply, not only of nutrient material, but also of oxygen,

and this fails when the flow through the capillaries is sluggish.

In a very large proportion of the cases of melancholia coming on late in life the evidence of persistent high tension of the pulse has been most marked, and when this has been the case it has seemed to me that persevering endeavours to diminish the peripheral resistance, and at the same time to strengthen the action of the heart, have been more successful than any other line of treatment. The object is so to relieve the heart that it may no longer be mastered by the obstruction in the general capillary circulation; there will then be a general acceleration of the flow of blood through the tissues, and by the increased supply of blood to the brain its nutrition and functional efficiency may gradually be restored. The possibility of this result and the time required for its attainment will depend on various conditions. There must be a capability on the part of the heart to resume its control over the circulation; it must not be degenerate or worn out. The state of the cerebral arteries, again, will have an important influence; if they are extensively diseased, the access of blood to the convolutions may be barred even when the circulation elsewhere is good. Further, the change in the nervous elements must not have gone too far; the longer they have been subjected to the deteriorating influence of imperfect blood-supply, the longer will be the time required for the reversal of the effects. Of these three sets of conditions we can only estimate the first by examination; with regard to the others, the basis of our judgment must be the history. Speaking generally, the more acute the attack and the shorter its duration, the better will be the chances of recovery.

Cases of this kind, many of which have come under my notice, do not lend themselves to narration, especially when seen in consultation only once or twice, and I shall not attempt to bring instances before you. I may, however, relate an occurrence with regard to one such—a most distressing case of religious melancholia in a lady of about sixty, with extreme high tension in the pulse. I had explained my views to Dr. Baines, with whom I saw the patient, and had recommended, among other measures, a series of mild calomel purges, when the sister of the patient joined us, in order to learn our opinion. Before hearing this, however, she said there was one more fact which she ought to have told us—namely, that their mother, at very nearly the same age, had suffered exactly in the same way. It seemed as if my hypothesis of the relation of the melancholia to the state of the circulation was at once overthrown, and with it my favourable prognosis. "But," she continued, "in those days they gave calomel for everything; and it was prescribed for her, and she got quite well." Our patient also recovered—only, however, to relapse some time later. Melancholia associated with extremely low pulse tension has, in my experience, usually proved incurable, and has in several instances gone steadily from bad to worse to a fatal termination. The case related a few minutes ago is the only instance of recovery I have met with.

I announced that this lecture would be devoted to the pulse and cerebral affections, but I may be permitted to refer to an affection of the lower end of the spinal cord, especially as it furnishes a sort of parallel to the production of melancholia by derangement of the circulation. Our late colleague, Dr. Moxon, whose loss those who knew him well will never cease to deplore, pointed out in his brilliant and original Croonian lectures, six years since, that common paraplegia, as he called it, was explained by anatomical facts. The spinal cord receives its blood-supply by means of the arteries which reach it along the nerve roots. These, in consequence of the downward elongation of the spinal canal beyond the cord, get the more oblique and longer from above downwards, and at the cauda equina are many inches in length, so that the arteries of the lumbar enlargement, which occupies the lower part of the dorsal division of the spine, have to travel upwards for this distance from the foramina in the lumbar and sacral regions. When, then, the circulation becomes languid, the mechanical difficulties of this arrangement make themselves felt. The symptoms attending the early stage of paraplegia due to failing circulation in the lumbar enlargement of the cord are very interesting. As the nutrition of the lower end of the cord begins to suffer, there is at first muscular weakness and loss of control over the legs only after a night's rest. The patient has some difficulty in standing and walking steadily when he first gets out of bed, but after he has moved about a little the legs regain power and he can walk perfectly. A similar state of things is observed with regard to the bladder. He cannot pass urine on rising, but when he has had a little walking he empties the bladder easily. Whenever he sits down for any length of time during the day, there is more or less impairment of mobility and strength in the lower extremities, which quickly passes off with movement. Sensation is not affected at first, but there may be feelings of numbness. The coming on of the weakness during the night is due to the slackening down of the circulation, which takes place during sleep, and is paralleled by the morning depression in melancholia and debility. I have met with this train of symptoms at the two extremities of high and low pressure. When there is high pressure, it is that the general resistance in the periphery has overtaxed the powers of the heart, so that the whole circulation is sluggish, and the languid flow is most easily brought to a standstill where the difficulties are greatest. Usually the symptoms come on very gradually, but I have known their onset to be determined by the occurrence of acute dilatation of the heart. When the tension is low and the heart weak, no explanation of the impeded circulation is needed.

I end these lectures with a feeling that I have done but scanty justice to the subject, but with feelings also of gratitude for the patience and indulgence with which my poor attempt has been received.

Lectures
ON THE
SURGICAL TREATMENT OF PULMONARY CAVITIES.

Delivered at the Consumption Hospital, Brompton,

By RICKMAN J. GODLEE, M.S., F.R.C.S.,
SURGEON TO THE HOSPITAL AND TO UNIVERSITY COLLEGE HOSPITAL.

LECTURE II.

(Concluded from page 670.)

THE next case is that of an unfortunate man, aged forty-seven, admitted under the care of Dr. Symes Thompson in February, 1882, who went to a dentist three months previously to have the third left lower molar removed. The elevator slipped, and the tooth dropped into his mouth and by a sudden gasp was drawn into the trachea. He noticed nothing for ten minutes; then there was sudden dyspnœa, lasting for a few minutes, and pain above the right nipple—that is, not far from the level of the angle of the scapula or the seventh dorsal spine. This passed away, leaving a paroxysmal cough, which never afterwards ceased. He began to expectorate thin, frothy mucus with flocculent masses, in amount about half a pint in the day, and continued to do so from that time. He gradually lost flesh, and occasionally suffered from night sweats and flushes; his appetite failed, and he became weaker and weaker. About a fortnight after the accident he felt a tearing pain during a fit of coughing near the right nipple, and for a short time the sputa were tinged with blood; but henceforward he had nothing to indicate the position of the tooth. He was, on admission, emaciated and weak, with rigid arteries and marked arcus senilis, a pulse of 120, respiration 30, and dyspnœa on the slightest exertion; profuse expectoration, especially in the morning; and a troublesome cough, aggravated by any exertion. There was no hæmoptysis. The physical signs were those of emphysema in the left lung and in the upper part of the right. But on the right side, below a line drawn at the level of the angle of the scapula, there was comparative dulness, both in front and behind, with diminished vocal fremitus and resonance. The breathing was weak in front and in the axilla, but behind there was cavernous breathing, with metallic râles and pectoriloquy and bronchophony. Pleuritic friction was heard in several places. The heart's apex was not displaced. On March 2nd Mr. Marshall introduced a trocar and cannula into the lung at a point two inches from the spine in the eighth interspace, and on this occasion only it was thought that some hard substance was touched, but nothing escaped

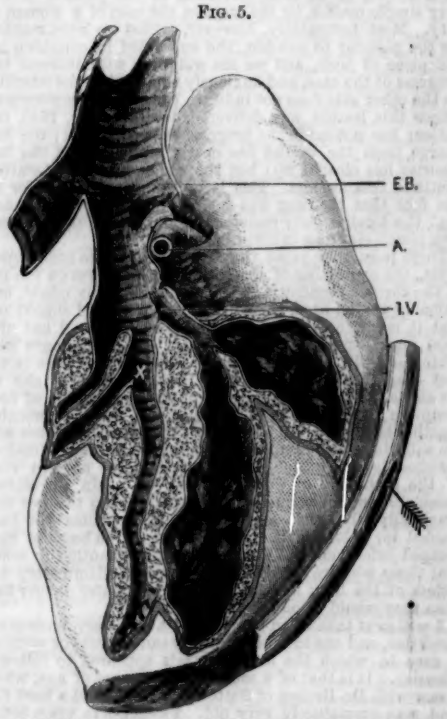
through the cannula. The intercostal space was then opened and the lung incised, causing considerable hæmorrhage and some hæmoptysis. A space was thus reached through which a probe passed an indefinite distance, no doubt having entered a large bronchus. The opening was still further dilated, but nothing came of it, and the wound was first plugged with carbolic acid gauze and then dressed antiseptically. The effect of this operation was to diminish the expectoration to a certain limited extent, while a considerable quantity of pus escaped from the wound and air was forcibly expelled from it when the patient coughed in the way which is characteristic of a freely opened bronchus. A further examination, causing considerable hæmoptysis, was made on May 29th, but without success, and the patient was sent to Eastbourne. By November 14th the wound was completely closed, the drainage-tube having been gradually shortened since the month of August. The physical signs had scarcely if at all altered since the last note. On Dec. 11th he expectorated eight ounces of blood, and this was followed by several similar attacks. It must be remembered, as we shall see in other cases, that patients with bronchiectasis are liable to copious hæmoptysis—a fact that must be taken into account in judging of the effects of surgical interference. In February, 1885, he was readmitted with the following changes in the physical signs:—Loud harsh rhonchi were heard all over both lungs, and there was increased resistence on the left side. This no doubt indicated an extension of the bronchial dilatation, and probably the commencement of the tubercular changes which were found post mortem. During the preceding three months he had become much worse; the wound had reopened and there was a copious discharge of pus, although the expectoration still continued in large quantities (from seven to eight ounces); for several days in December he had suffered from profuse hæmoptysis (half a pint at a time). On Feb. 18th, Mr. Marshall being present, I excised a portion of the ninth rib, so as to make a thorough examination. We found a long cavity with remarkably smooth walls, from which little or no hæmorrhage took place, even after prolonged manipulation. At one part of the cavity a small opening was found, through which a probe could easily be passed a long distance into the bronchus. It impinged against some very large vessel when introduced to its furthest limit. No foreign body was discovered. The expectoration diminished for a few days, and then increased again to its usual quantity. On April 2nd I made several punctures into the lung with the object of finding a second cavity, but without success, accurate diagnosis being out of the question owing to the presence of universal loud rhonchi. The patient gradually became worse, and died on April 16th.

At the post-mortem examination somewhat advanced tubercular changes were found in both lungs, and there was a tubercular cavity at the right apex. The bronchi in the lower parts of both lungs were dilated, but this was especially the case on the right side. Here, then, was a complicated system of dilated bronchi, internal to and below the cavity which communicated with the external wound. Just below the point of bifurcation of the bronchus (Fig. 5, 1 v.) going to this system of cavities the tooth was impacted, riding on the bronchial spur with the fangs downwards. There was no ulceration of the bronchial mucous membrane at the spot, or indeed anywhere; and, as far as could be judged, this was the only spot at which the tooth had lodged. There was slight tubercular ulceration of the cæcum.

This case illustrates very well the nature of the changes which are produced by a foreign body in a bronchus, and appears to show that the changes are brought about by the retention of the irritating, because putrid, secretion; for similar changes have occurred in the lower part of the opposite lung, no doubt because some of the pus found its way into the opposite bronchus. Whether this result is produced wholly or chiefly by the direct action of the secretion upon the bronchi, and whether the contraction of the chronically inflamed lung which surrounds them has much or little to do with the process, it is not easy to say; but it is interesting to notice how close is the resemblance between the condition of this lung in which the mischief is artificially produced, and other specimens in which it has occurred spontaneously. In the earlier stages of a case of this kind there are so few physical signs, and in the later ones there are so many—that is, the loud metallic rales and more or less cavernous breathing are so universal—that it is a matter of very great difficulty to diagnose the position of the foreign body. I do not say that an attempt should not be made to find it. In this particular instance an incision a little further inwards would most likely have led to its discovery; but I do think it is a question, when the history is pretty clear, whether methodical inversion of the patient should not be practised first, and whether, if this be not successful, tracheotomy should not be performed in order that a search may be made with a loop of silver wire suitably bent, or a pair of very delicate curved forceps. With such an instrument I have, without much difficulty, removed a vulcanite tracheotomy tube which had separated from its shield, on the third day I think, after it had become impacted in the right bronchus, and after definite physical signs rendered its presence there indubitable.

From what I have pointed out about the position of the bronchi and their mode of subdivision, it is most likely that the foreign body, if it be as large as a tooth, will be found somewhere in the course of the main right bronchus, and

FIG. 5.



Dilated bronchi, caused by the presence of a tooth. The arrow indicates the part of the cavity which was opened. E B. Eparterial bronchus. A. Pulmonary artery. The tooth lodged just below the first ventral branch (1 v), in the main bronchus, at a spot marked *x*.

it is highly likely that the loop of silver wire would bring it up. Any search such as we made in this case must be very problematical unless a gangrenous abscess has formed, and I think we should not wait for such an occurrence. If, as happened in this case, the wrong bronchus is opened, the search from below is of course hopeless; from above, on the other hand, the wire might, by giving it a somewhat different curve, be made to enter many of the lateral bronchi in succession, and at last reach the right one. This plan should be adopted, even after some time, as Dr. Coupland's case shows that recovery may take place after considerable changes have occurred in the lung.

We much hope that such a result will be obtained in the case of H. G——, a woman fifty years of age, now in the hospital under the care of Dr. Williams. She has been the subject of winter cough for years; but has had a severe accession to it since she "swallowed" a piece of mutton-bone about May 19th, 1885. She developed a most troublesome cough after this, with copious fetid expectoration, and at

last, after pleurisy on the right side, a collection of pus was diagnosed on the right side and opened by me on Aug. 14th beneath the eighth rib near the angle of the scapula. The abscess only reached the surface at a very limited area, and the finger passed into a sort of sinus, which just held it, about four inches long. For weeks this patient was very little relieved by the operation; the discharge was copious, and expelled with the characteristic whiffling sound referred to before; but the expectoration was scarcely diminished in amount, or at least the diminution was taking place very gradually, and the cough was always very trying. Latterly she has developed a left pleurisy. If it had not been for this I should have undertaken a new exploration. We had not till lately paid proper attention to the history, or had perhaps thought that we had sufficiently often been deceived to warrant us in neglecting "the cry of wolf"; but I was beginning to think whether it might not be right to suggest tracheotomy and search from above, or at least inversion of the patient—a not very simple matter, by the way, in the case of a woman of fifty. Most fortunately, however, whilst we were waiting for the pleurisy to subside, she succeeded in coughing up the piece of bone, and we are watching with interest the progress of the case, and anxiously hoping that the mischief on the other side does not indicate the onset of septicæmia. [Since this lecture was delivered, in November, 1886, the patient has not made the progress we anticipated; the discharge from the wound has nearly stopped, and the left pleurisy has cleared up; but the cough and expectoration continue troublesome. This is no doubt accounted for by the fact that the lung was not healthy to begin with, and that the foreign body remained in the bronchus for a very long time—eighteen months.]

There is another point that I scarcely like to touch upon—viz., the engrafting of the tubercular processes on the top of the chronic bronchitis and pneumonia. This might, and probably would, have occurred anywhere, and I should add that it is the only instance that I have observed out of a good many cases of bronchiectasis; but one cannot help asking oneself whether an institution such as ours is the best place for a patient with this disorder to take up his abode. The whole question of the aggregation of consumptive patients, but more especially that of bringing together those who are distinctly tubercular and those who are suffering from simple—i.e., non-specific—inflammatory changes, is one which, in my opinion, the modern view of the pathology of tubercle opens up again for mature consideration and discussion. It is one thing to show that practically all of the presumably healthy persons who have resided for a longer or shorter period in the hospital have escaped infection; but it would be quite another to assert that those who are suffering from chronic inflammatory disorders of the lung are not exposed to greater danger here than they would be outside.

I will next take as an example of a not very uncommon condition, and one in which surgery can do little or nothing, a case in which the bronchiectasis appeared to follow a pleurisy. It is that of a man fifty-five years of age, whom I saw with Dr. Benson of Sutton. He had lived a hard life, and was prematurely very old. Twenty-five years before he had suffered from an empyema, which had ruptured spontaneously in the tenth space behind (a very unusual position for such an occurrence), and, after discharging for four weeks or so, had healed. Since this time he had always been liable to cough, especially during the winter, which during the last few years had been much worse, causing a gradual decline of the patient's health. There was at the time very copious purulent expectoration, as if from a cavity, and there were also much emaciation and marked clubbing of the fingers, but there was no albuminuria. The left side of the chest was contracted, resonant in front, with harsh breathing and creaking and sonorous râles, but almost dull in patches over an area corresponding to the lower lobe in the back and axilla; there was no absolute dulness, however, and none in front of the mid-axillary line. Over this area of deficient resonance there was amphoric breathing with metallic râles, and pretty well marked ægophony and pectoriloquy were heard in places. The right side was resonant throughout, with harsh breathing and sibilant and sonorous râles. The heart was drawn a little outwards, and there was no murmur, though previously one had been heard which was thought to be tricuspid. An incision had been made a few days before in the tenth space, and a little doubtful pus had been seen; if so, the knife had no doubt reached one of the dilated bronchi, for it must be remembered that in these cases, even if cavities do exist and are the source of the greater part of the expectoration, the bronchi contain a precisely similar material. The diagnosis was extensive bronchiectasis throughout the lower lobe of this lung, but probably no distinct cavity. The case seemed a most unpromising one for operation, not only on account of the supposed state of the lung, but also from the patient's general condition. A trocar was, however, introduced at the spot where the amphoric breathing was most marked—viz., in the eighth interspace behind. It was passed in for two inches and entered condensed lung, but did not reach any cavity, and no hæmoptysis followed. The patient lived three days longer, and Dr. Benson sent me the notes of the necropsy. They show that the right lung and the anterior part of the left lung were partly emphysematous, partly marked by old cicatricial contractions, and that there were in these regions old scattered firm adhesions; but the lower two-thirds of the left lung were bound down by universal and very strong old adhesions three-sixteenths of an inch or more in thickness, and this part was "firm and consolidated, tough and cartilaginous on section. The section was studded with the open lumina of the bronchial branches; the bronchial walls were everywhere very much thickened and at places very much dilated, their mucous membrane being thickened and injected; the bronchi contained blood-stained muco-pus. No actual cavities were found." The liver was nutmeg, and the heart somewhat fatty.

One cannot doubt that the old pleurisy, with perhaps some pneumonia, was in this case the cause of the commencement of the process. It is remarkable to me that it was so much confined to the lower lobe of this lung; but, notwithstanding its local nature, it is not apparent in what way surgery could at any time have been of use. In exploring the lung in cases like this, when contraction may be presumed to have occurred, it is important not to go beyond the natural limit of the lung downwards; and, indeed, it is wiser to stop short of this. This part of the lung behind is very thin, and an incautious use of the trocar might readily lead to the puncture of the peritoneal cavity, or perhaps of some abdominal viscus.

I will now pass to a few cases which are instructive as illustrating the difficulties and some of the dangers which attend the attempts at dealing with more or less diffused cases of bronchiectasis. I will take, in the first place, one in which nothing was done except an exploratory puncture, but in which the mere administration of the anæsthetic led to a fatal result; it is highly instructive as illustrating the fact that the amount of the physical signs is no criterion of the amount of mischief present. In this case, for example, they showed little or no mischief on the right side, though the man's general condition led us to suspect that this lung was not sound. We found, indeed, that the mischief was almost, if not quite, as advanced as on the other.

R. *N*——, aged thirty-five, a man of fair general health, who had all his life been the subject of a slight cough, was admitted under the care of Dr. Powell. He had suffered from syphilis ten years before, had been a hard drinker, but had not been troubled much with his chest until about a year previously, when he had an attack of hæmoptysis following apparently on severe exertion, since which time the expectoration, which had been more copious, gradually became offensive. Shortness of breath for three months had distressed him very much. The man was in a very feeble condition, with clubbed fingers and some general blueness, and obvious dyspnœa; a peaky temperature, varying from normal to 102°, and a pulse of about 130. Briefly to sum up his physical signs, they appeared to point to a considerable coalescence of bronchiectatic cavities over the lower part of the left scapular region and at the apex behind, but did not indicate much amiss with the right side. Neither Dr. Powell nor I anticipated much benefit from surgical interference, but it was thought right to make an exploration with the view of determining whether or not there was a cavity large enough to deal with. Accordingly, on Sept. 4th, 1885, chloroform was administered. He took it badly; he was in a highly nervous condition and coughed considerably, emptying his dilated bronchi—which, as it turned out, were very numerous—into the larger air tubes. The result was that he became exceedingly blue and perspired freely. Not much chloroform was administered. Two punctures were made without effect, and then we found that all our attention was needed in order to

attempt to clear the bronchi. Our efforts, however, were not successful. It was not exactly a case of death from chloroform, for his state was at first not so very alarming; the act of respiration was performed freely enough, even forcibly, but there were loud tracheal râles, which gradually increased. He lived in this state for half an hour, and then, notwithstanding all our attempts to aid him to cough, he became completely choked by the pus which he had partly coughed and partly vomited up. Post mortem, the cavities which had been diagnosed were discovered in the position indicated by Dr. Powell; the whole of both lobes of the left lung being dense and tough, with markedly fibrous interlobular septa. But the right lung also, though spongy, was throughout the subject of bronchial dilatation, not indeed so marked as on the opposite side, but still, when it is said that one cavity was as large as a hen's egg, it will be recognised that the disease was considerable.

From the surgical point of view, one is struck with the fact that this patient was supposed to have but little the matter with the right lung, whereas it contained several cavities of considerable size; and also with the fact that, although the cavity to which the surgeon's attention was specially directed was undoubtedly the largest, still there were others at some distance from it in the same lung not much inferior to it in size. These cavities all present the glistening, smooth-walled appearance which seems to be typical of these excavations; they have strands and bars of fibrous material crossing them, which apparently contain vessels, resembling the columnæ carneæ of the heart. They seem often to be continuations of the main bronchi, but are not always so, for one in the left lung is separated by at least an inch from the main bronchus, and communicates with it by quite a small tube.

I cannot leave this case without making an observation on the subject of the anæsthetic. Ether would in many of the cases we are dealing with be the natural drug to give, because the heart is often acting so feebly, were it not for the impairment of the respiration which is frequently caused by it, owing to the copious secretion of mucus. Besides which, it is more apt than chloroform to induce cough, and coughing increases not only the surgeon's difficulties by emptying the cavity, but also the patient's danger, as in this case, by blocking up the healthier bronchi. A little while ago we were giving ether to a man the right side of whose chest was distended with pus. His heart's action was already much interfered with, and he struggled and coughed violently during the early part of the administration; the result was that he passed into a state of imminent danger. He became cyanotic, the right side of the heart was engorged, the pulse was beginning to fail and the pupils to dilate, though he had taken but little of the anæsthetic. If the pleura had not been immediately opened, I do not think that this patient would have recovered from the condition set up by this really very small dose of ether. There are many cases, however—small empyemata, with comparatively healthy lungs,—where it may quite safely be employed. Chloroform does not usually make the patient cough so much, though it is necessary in many cases to give the anæsthetic very slowly in order to obtain this result; but, on the other hand, it weakens the heart action. Hence it will be understood that occasionally cases may be met with in which it is not safe to give any anæsthetic at all. An empyema may easily be opened without causing any great pain if the cellular tissue of the part has been injected with cocaine; but in a case of pulmonary abscess the anæsthesia produced by this drug would be too limited and too transient. On the whole, therefore, in the greater number of cases, chloroform, given slowly and with great caution, seems to be the safest anæsthetic at our disposal.

Of course, in all cases of puncture of or incision into the lung, it will be remembered, as I stated in the first lecture, that the same danger may at any moment arise from the escape of blood into the bronchi; hence it is well never to have the patient so deeply anæsthetised that the natural relief of coughing for such a catastrophe cannot be obtained. A typical example of this class of cases formed the subject of a paper by Dr. Williams and myself at the Medico-Chirurgical Society last session,[1] and will therefore be only briefly referred to here.

M. E——, aged twenty-one, a domestic servant, was admitted into the Brompton Hospital in May, 1885, with "chronic bronchitis and emphysema of both lungs, followed by pleurisy and fibrosis of the lower lobe of the left lung, and consequent dilatation of the bronchi of that side." Such was Dr. Williams's diagnosis, and he considered that several bronchiectases existed, but that there were three of larger size than the rest, the situations of which he indicated at the posterior part of the left base. On two occasions I endeavoured to open one of these cavities after ascertaining that the pleura was obliterated by adhesions, on the second occasion after excising a portion of rib. At the first operation a small amount of muco-pus had been drawn out by the aspirator; but owing to the slipping of the cannula, which was being used as a guide during a paroxysm of coughing, even this, probably very minute, cavity was not reached, and at the second attempt no cavity of any kind was met with, although the lung was very freely incised, causing considerable hæmoptysis and some hæmorrhage. A drainage-tube was inserted and worn for some time in the hope that the abscess might rupture into the track that had been made. There was at no time, however, any material escape of pus through the wound, and ultimately the tube was withdrawn and healing was allowed to go on. It was complete in about a month after the second operation. The difficulty mentioned above, which is caused by extreme softness of the pleural adhesions, was very marked in this case, and rendered the incision into the lung an uncertain and unsatisfactory procedure. This patient is, and has been for some time, in danger of the septic troubles of which mention was made before, and also of that which may arise from hæmoptysis; and although she herself thinks she has improved since she has been under treatment, I must, to speak honestly, seriously doubt whether much, or any, of this improvement depends upon what has been done surgically. She had a severe attack of hæmoptysis whilst she was wearing the tube, but this of course might have happened independently, for she had similar attacks before. She certainly was exposed to some risk by the mere fact of opening up the cellular tissue for the passage of the putrid pus contained in the bronchi, and a possible risk from the doubt which existed as to the presence of pleural adhesions. In her case the pleura was, in part at least, obliterated, so that the danger hinted at did not arise, but that it is a real one is exemplified by the following very similar case, in which the same course was adopted.

H. C——, a married woman aged twenty-nine, had been the subject of a cough all her life, which was worse during the winter. She was said to have had "bronchitis and pleurisy" in February, 1885, after which time the expectoration had been much more copious, and during the two months before admission (in December, 1885) it had been offensive, and dyspnœa had developed itself. She had had an attack of hæmoptysis. As in the last case, the signs of bronchiectasis were marked in one region, the left base, but not very obvious elsewhere. The disease was advancing and the general condition bad, and it was therefore decided to make an attempt to open and drain the cavity in the left base. An exploratory puncture on Dec. 30th resulted in the extraction of a small quantity of reddish fluid, which evidently came from the pleura, so any further operation was deferred till Feb. 4th, 1886, when a puncture was made in the ninth interspace, which revealed practically nothing, but caused a little hæmoptysis; and afterwards an incision was made over the tenth rib, below the angle of the scapula, and two inches of it were removed. The pleura was not adherent immediately beneath the opening, but a small cavity was entered surrounded by feeble adhesions. A linear incision in the lung opened a small bronchiectatic cavity near the surface of the lung, through which a probe passed readily into a bronchus for a long distance, causing troublesome coughing. The opening was dilated with dressing forceps, and then the finger and afterwards a drainage-tube about two inches long were introduced; but this led to the separation of the lung from the chest walls and the opening up of the anterior part of the pleural cavity, where there were no adhesions. This made it very difficult to dilate the opening in the lung. Very little bleeding occurred, and very little pus escaped, though the patient coughed up a considerable quantity and vomited a good deal which she had swallowed. Here the operation was so far successful that one part of the labyrinthine cavity was reached and drained; but although afterwards a considerable amount of pus escaped through the opening, it made but little difference to the amount of daily expectoration, and for a time her condition gave us very great anxiety; for the opening up of the pleura not only rendered the lung of this side practically

[1] Medico-Chirurgical Transactions, vol. lxix.

useless and vastly increased the dyspnœa, but also gave rise to a septic pleurisy causing grave constitutional disturbance and serious risk to life. She left the hospital in a very weak condition, and is supposed to have died since, but we have not been able to ascertain when or how this happened.

I might multiply the account of such cases, but as this would be tedious, I will only mention in any detail one other, in which no operation was attempted, though, as was shown by the necropsy, it was the only one in the series at present in which any great good was likely to be gained.

J. W——, aged thirty-two, a patient of Dr. Powell's, a plasterer by trade, had inflammation of the lungs seven years before, from which he apparently completely recovered, with the exception that he suffered from a dry hacking cough for a year. Twelve months before admission he had an acute illness, accompanied by a severe cough, with shiverings and dyspnœa, after which he began to expectorate between one and two pints daily, the expectoration being odourless at first, but gradually becoming highly offensive. He is said to have had a left pleurisy six months before admission, which made matters much worse. On admission, in October, 1885, he exhibited very puzzling physical signs: the right side seemed fairly healthy, but on the left side there were at times all the signs of a large cavity in the neighbourhood of the angle of the scapula, while at others these signs were altogether absent. His temperature varied, being sometimes almost normal, sometimes varying between 99° and 103°. It was found that by inverting him a copious flow of expectoration could be obtained, generally accompanied by some marked alteration in the physical signs in the back. So doubtful, however, did the indication appear to be, that the point of recommending surgical interference was never actually reached, and about Nov. 12th his temperature rose, he became rapidly worse, and died on Nov. 16th. At the post-mortem it was found that there were considerable adhesions on both sides, more on the left than the right, and a small localised purulent collection on the right side. The left lung showed remarkably little fibroid thickening, but was studded with bronchiectatic cavities, the largest of which was in the posterior axillary line, the next largest being near the angle of the scapula—in fact, in the position diagnosed. Dr. Kidd, before making the post-mortem, inserted a knife at the point indicated by him during life, and it entered the cavity directly. There was slight but not excessive bronchial dilatation on the right side.

The noticeable point about this case is the very large size of the main cavities. One at least could clearly have been reached by an incision, but it is certain that even this would only have afforded the patient very partial relief, as there were many others in this lung, and a similar condition was starting upon the opposite side, and even the cavity which could be reached was much branched, and probably would not have been very efficiently drained even if it had been fully incised. The condition of the apex of the right lung is very remarkable; there seems to be an interstitial change, not starting from anything caused by retained bronchial secretion.

To sum up the state of opinion at the present time with regard to the whole subject, it may be said—1. Gangrenous cavities should always be sought, and, if possible, opened; and the prognosis, if the operation be successful, is not bad. 2. The same may be said in regard to abscesses caused by the rupture of purulent collections from other parts into the lung, at least as regards the pulmonary complication. 3. Abscesses connected with foreign bodies must be opened, and if the body be not found, it must be remembered that, if of any considerable size, it probably lies pretty near the middle line. If possible, these cases should be treated early by tracheotomy and incision. 4. Bronchiectatic cavities, when single (a very rare condition), will be cured by operation. When multiple (a very common condition), they offer but small chance of relief by our present surgical methods. Still, for the reasons stated, an attempt may be made to open the main one if such is to be found, but only if the pleura has been ascertained to be adherent. 5. Tubercular cavities should only be opened in cases where the cough is harassing and the cavity single. Injections may be used to relieve symptoms, but cannot be expected to be curative.

THE treasurer of the Queen's Hospital, Birmingham, has received from Her Majesty a cheque for £100 in aid of the funds of the institution.

NOTE ON PUNCTURE OF THE ABDOMEN FOR EXTREME FLATULENT DISTENSION IN PUERPERAL CASES.

BY W. O. PRIESTLEY, M.D., LL.D.

I HAVE received from Surgeon-Major Franklin (at present on duty with the Lieut.-Governor of the Punjab) notes of a puerperal case which he attended while at Simla in April last year, and which raises the interesting question as to the propriety and utility of puncturing the colon in cases of extreme abdominal distension after delivery. Surgeon-Major Franklin's patient, whom I had known as a girl, went out to be married in India two or three years ago, and her first labour began on April 8th, 1886. The presentation was natural, but after a long and tedious labour, resulting from inefficient pains, the case had to be terminated by forceps under an anæsthetic, and the perineum was ruptured. Sutures were put in the perineum, and all went well until two days later, when the patient became hysterical, and began to suffer from nausea and vomiting; at the same time the abdomen became much distended. Hypodermic injections of morphia, with the application of turpentine to the abdomen, checked the sickness, and allowed milk and lime-water to be taken for a time. Next day the abdominal distension had enormously increased, there was constant vomiting, some dyspnœa, occasional rigors, and signs of exhaustion.

My correspondent says, the obstetric authorities, Playfair, Barnes, and Ramsbotham, gave him no help as to the way he was to relieve the extreme abdominal distension which was threatening the life of his patient. He had tried all the usual remedies without effect, and so was obliged to act for himself. After consultation with a colleague, Dr. Harris, he punctured the ascending colon with a small trocar. The gas escaped with considerable force, making a whistling noise as it passed through the small cannula. With the aid of pressure the greater part of it was expelled and a binder adjusted. Immediate relief was afforded, vomiting ceased, and only slight nausea remained. She had a good night, and next morning the temperature was normal. This first puncture was made about seventy-two hours after the birth of the child. Forty-eight hours later it was necessary to puncture the colon again, and this was followed, as after the first operation, by immediate relief to all the distressing symptoms. The second operation was followed by the giving of calomel, in doses of one-twelfth of a grain, every half-hour, and continued for about sixty hours, until the bowels acted freely. The temperature rose to 102° after the second puncture, and for ten days the case continued to cause some anxiety, owing to nausea and want of sleep. After this the improvement was steady, and the patient eventually got quite well. There is no record of the temperature during the access of the illness, and nothing is said of pain or subsequent inconvenience from the abdominal punctures.

The practice of tapping the abdomen for dangerous retention of flatus is a well-known remedy in some of the ailments of domestic animals, and more particularly the operation is said to be often practised on sheep when they have "blown themselves," as it is called, by having eaten too largely of a very succulent pasture, or of some herbage which is improper for them. The operation is described in some detail in a recent work of fiction depicting country life, and a farmer is spoken of as skilled in the employment of a perforating tube, the proper use of which is alone capable of saving a whole flock of sheep "blown up" after straying into wrong pasture. There are various records of cases where the intestine has been punctured in the human subject for extreme distension in connexion with obstruction of the bowels or hernia. For example, Wagstaffe mentions a case in the *British Medical Journal* for 1877, and Broadbent another in the same journal for 1879. Further references are to be found in "Neale's Digest"; and Mr. Bryant, in the *Medical Times and Gazette* for 1872, details a case of hernia, with intestinal distension, where punctures were made in the bowel without bad result; there was no escape of the bowel contents, and only a drop of blood. That the proceeding is ordinarily innocuous enough is proved by the fact communicated to me by Dr. Broadbent, that in one patient the bowel was tapped for flatus some-

where about twenty-eight times, without bad result. Prof. Foussagrives, in the *Gazette Hebdomadaire* for 1877, says that he has seen intestinal puncture practised by Nélaton, Blache, and Velpeau, and that "it is a sovereign operation in some cases, and not dangerous even where there are multiple punctures." Surgeon-Major Franklin says, in one of his letters to me, that he had some recollection of a suggestion made by Dr. Braxton Hicks concerning tapping a flatulent abdomen in puerperal cases, and Dr. Hicks tells me that, though he had suggested it as applicable under certain circumstances, he has not himself employed it. I may remark that in some forms of illness after delivery there is no doubt grave danger arising from extreme abdominal tympanites. It is even probable that with the decline of other untoward symptoms the mere continued pressure of the distended intestines may so keep up irritation of the stomach and depress the heart's action as to become itself a source of peril. In these cases puncturing the intestine where it is most distended may afford notable relief, and experience seems to teach that it may be practised with impunity.

Hertford-street, Mayfair, W.

THE PLACE OF HEALTH IN EVOLUTION.[1]

BY W. R. MACDERMOTT, M.B. DUB.

SOMEONE once, on asking a little negro girl in Kentucky who made her, got for answer, "Nobody made me; I growed." If I asked how we came by our health, a like answer might be given. It might be said that nobody made our health; that we did not make it ourselves; that it came as a gift of nature. If ill-health afflicts us, it would be said that it, too, comes as part of our natural lot. Health and nature here are terms of loose meaning. Health may be taken as a state of being, as a relation of condition, as a formative process. We will take it here as a state of being, made in the sense that it is the outcome of antecedent condition. We take it as expressing a state of being continuous with prior states of the same kind, and shall consider whether variation from current normal condition stands in relation to variation from prior condition.

An idea of fitness comes as an introduction to our subject it is more, however—it is the beginning, middle, and end of it. We usually think of fitness as something qualifying a man beforehand for health, but it is, in fact, a synonym for health. It is not a mere rhetorical phrase, but a term expressing physical truth. Fitness means health in the physical sense; the strong man who wants fitness for health has, in reality, want of health. Health, in truth, means the fitness of states of being to the conditions of life. It is, therefore, as these conditions are unstable, a thing not fixed, but changeable. In the world, as it exists, we find life fitted to many different conditions. Man himself we find fitted to many climates, to lofty mountains and tropical swamps. But as his fitness to one set of conditions so usually is his unfitness to the opposite set. The fitness of the negro to tropic heat means unfitness to a cold climate. The fitness of the European to temperate conditions means unfitness to the extremes experienced elsewhere. We have thus many different states of being, each of which is health only as corresponding to certain conditions. In the end fitness comes to be expressed as structure, and particular modes of structure-growth. The outcome of the fitness of the negro to heat is a mode of structure; his body becomes physically moulded to the condition. On the other hand, the condition is necessary to maintain the fitness. In the northern States of America the negroes are very sickly, one out of every six born in these States being deaf, dumb, blind, idiot, insane, pauper, or in prison. Europeans in hot countries show a like inability to conform easily to the condition of climate. We thus find that a mode of structure once formed subsists for a long time in a race, becoming under unfitting condition a source of ill-health. The fitness to condition means perhaps, in proportion to its completeness, a want of power of accommodation to change of condition. The very fitness of the negro to heat makes it the harder for him to fit himself to cold. When, therefore, we have a people of mixed descent, such descent will bring into it many states, varying from fitness to unfitness, in reference to its conditions of existence. Is this composite state represented in the actual health of the people? In the first place, all modern societies of any importance are extremely composite by descent. They contain elements representing every different condition to which man has fitted himself from time to time. We are so accustomed to the idea of our descent from one man that we do not easily heed the more immediate fact of our descent from mankind *en masse*. Each man has a father and mother, probably brothers and sisters. He will have four grandparents, eight great-grandparents, and so on going backwards. At the tenth generation backwards he may have theoretically 1024 direct ancestors; at the twentieth only 1,048,576, and a corresponding number of collateral relatives. He will not, of course, have so many, but still he must have a vast number. When we remember that twenty, or even a hundred generations cover but a short period in our race history, and that such history records incessant movements of population, we can easily believe that each one of us has built into his constitution part of the negro's state of fitness to heat, part of the Laplander's to cold, part of every state to which man's body has been moulded; it may be said, blended into a sweet and reasonable mean. Yes, but not indissolubly, not perfectly. In Europeans we constantly find characters of skull and feature—of structure belonging to remote and perhaps extinct races. We find the negro Tartar and Malay structural type showing often amongst us more or less distinctly. In idiots and the insane I have seen structural character which I could assign to no race I knew, but which I felt sure belonged to facts of race structure, most likely of remote antique nature. Now, these types are exhibited in a peculiar way. They show in single members of a family as a manifestation of something underlying in latent or dormant form the whole connexion. I have seen the Tartar type in single individuals standing in the relation of third or fourth cousins, the rest of the connexion being Caucasian in appearance, I have seen the negro type assert itself in just the same way. We have here two significant facts—the fact of latency and the fact of exceptional manifestation of structural character; both we must admit, though we fail as a rule to find adequate explanation for them. We know them as unexplained facts of inheritance. They mean that variations of structure corresponding to man's experiences of condition subsist potentially in him and exhibit themselves exceptionally under circumstances for the most part unknown to us.

Let us now ask ourselves what is the sum of the variations of structure thus represented in inheritance. We can see easily enough that we may find in ourselves all, or nearly all, the states which man experiences locally or has experienced historically as man. We can see, too, that many of these states, coming back out of place, out of time, as characters of race structure do, would appear in him as states of unfitness, of ill-health. When, however, the history of the bodily man has to be taken as going back continuously into pre-human experiences, the question arises whether abnormal variations of structure and mode of structure-growth do not also express those experiences. Taking structure generally in relation to both antecedent and current circumstance, we find that change is always not to something new, but to something which exists in some other place or has existed at some other time. When an organ or part of the body exhibits an unfitting pattern, such pattern exists normally somewhere else in the body, or did exist in it at some other time. So far this explains something usually seen in states of ill-health. But the normal pattern itself, which we suppose to change, is a thing determined in inheritance; it is but one of a series of patterns occurring therein. The items in the series, again, are continuous; they not only pass continuously from one into another, but they inhere in a general programme. Thus the great fact of the mammalian pattern in man is determined in inheritance, and is a result in a programme or pattern, not of structure, but of change of structure containing pre-mammalian patterns as items. But this fact conditions the actual pattern; it cannot be taken apart from its determined mode of formation, which always remains represented in it. The pattern is an elaboration out of pre-existing details which always remain in it as potential elements expressing its process of making. It is this process, this programme of living, that brings out the details; to it they belong. But the very nature of such a programme involves variability, which, in reality, means

[1] Abstract of a lecture delivered at a Young Men's Association, Dromantine, Newry, Nov. 15th, 1886.

indetermination. At one stage in it nothing exists determining the element of structure-growth in reference to one future stage more than another; the element is determined by current circumstance, only under a condition of general conformity to the programme. Thus, in the infant the pattern of a structure—say of the brain—may be determined in a way unimportant as regards current state of being, but, being once determined, becomes deeply significant in subsequent states of being. In the child's brain a non-human detail existing in the programme of life can be introduced with impunity; there is nothing in the conditions of life at that stage, within certain limits, absolutely determining to the human rather than some other pattern. The determination of the pattern lies, to some extent at least, within the general limits of the programme. It would not be right to say that this is indetermination absolutely; it is only indetermination in respect of future detail. The programme potentially contains many patterns, the choice between which is determined under immediate conditions, allowing divergence in the initiation of detail, which obtains weight only subsequently. At a period in existence, therefore, what determines detail of specific pattern is wanting, or of small potency, and the characters of other patterns included in the programme are not rigidly excluded. Now, we know as a fact that abnormal elements of structure do actually enter the human pattern with impunity at an early stage, to become in after-life sources of ill-health; and in many instances a strong resemblance between these elements and elements of structure in lower animals is very apparent. The value of such observations is to be estimated, firstly, by the actual significant and determined nature of the resemblance and its generality; and, secondly, by the resemblance coming into the body of facts, which make a larger induction—say that of evolution. In the actual outcome, as each state of ill-health in the initial step is perhaps invariably a matter of local detail, the true nature of the state becomes of increasingly difficult recognition. When a part grows after a wrong or obsolete pattern, it has to reckon with the parts and processes which do not misbehave, with the result that the actual form of the pattern is disturbed or obscured. It is only in certain cases that an unfitting pattern can be maintained, its unconformity to the specific pattern leading usually to profound disturbance. In some cases, however, the human system is more or less tolerant of abnormal patterns of structure, and when this happens they are found generally to correspond to patterns normal in other animals. No two human bodies are quite alike, and the difference in each case from an assumed specific type is at bottom, as a rule, due to change to a non-human pattern. This is the general form of variation. Sometimes it can be seen even in disease—that is, when unconformity induces disturbance, when the pattern is maintained with difficulty. In gout we have a mode of digestion in essential particulars, normal in birds and reptiles, manifesting itself complicated with unconformity in man. But in proportion as the unconformity becomes more decided, facts of similarity are liable to be taken as accidental and non-significant. A superficial likeness is observable between certain diseases of the human skin and skin structure in fishes. The fact should not be ignored. It may be, indeed it is probable, that reversion to fish-like types of structure occurs in man disguised by extreme unconformity to the human type. This in all probability would be found in skin and nerve disease.

Possibly it may be thought that I have not said how our health is made. In the present state of knowledge I could not do so. All that can be done is to state the problem in various tentative ways; to approach it, to realise it. If the doctrine of evolution be taken, we must expect the facts of health and ill-health to find a place in it. All I could do was to indicate that place in a general, and I fear unskilful, way. The doctrine in its present state does not prove the views I have explained, nor do these views add much to the induction; but at the same time no other working hypothesis exists to give our observations of states of health coherent or intelligible connexion.

Poyntzpass, Newry.

THE annual meeting of the Governors of the Leicester Dispensary was held on the 31st ult., when satisfactory financial and general reports were presented and adopted.

RESULTS OF

MAJOR AMPUTATIONS TREATED ANTISEPTICALLY IN THE NEWCASTLE-ON-TYNE INFIRMARY,

FROM APRIL 1ST, 1878, TO DEC. 31ST, 1886.

BY FREDERICK PAGE,

SURGEON TO THE NEWCASTLE-ON-TYNE INFIRMARY; EXAMINER IN CLINICAL SURGERY, UNIVERSITY OF EDINBURGH.

IN the year 1884 I published in THE LANCET a table (No. I. below) giving the results of major amputations performed antiseptically in the Newcastle-on-Tyne Infirmary during a period of four years and nine months—from April 1st, 1878, to Dec. 31st, 1882,—and contrasted the mortality with that of a similar period, an account of which appeared in THE LANCET, I think in the year 1873.

TABLE I.

	For Injury.			For Disease.			Total.
	No.	Recov.	Died.	No.	Recov.	Died.	
Hip-joint	0	0	0	2	0	2	2
Thigh	16	11	5	37	34	3	53
Knee-joint	3	2	1	4	4	0	7
Leg	20	16	4	24	24	0	44
Ankle-joint	4	4	0	16	16	0	20
Shoulder-joint	3	3	0	2	2	0	5
Arm	11	9	2	6	6	0	17
Forearm	8	8	0	4	4	0	12
Wrist	0	0	0	0	0	0	0
Total	65	53	12	95	90	5	160

I am sorry that I am not in a position to give the precise cause of the seventeen deaths, but the mortality was 10·6 per cent. and showed a marked decrease from that of the previous report. From injury the mortality was 18·4 per cent., from disease 5·2 per cent.

Table II. gives the results of major amputations performed antiseptically in the infirmary from Jan. 1st, 1883, to Dec. 31st, 1886, a period of four years, with the precise

TABLE II.

	For Injury.			For Disease.			Total.
	No.	Recov.	Died.	No.	Recov.	Died.	
Hip-joint	0	0	0	9	6	3	9
Thigh	10	9	1	54	51	3	64
Knee-joint	4	4	0	1	1	0	5
Leg	21	21	0	26	24	2	47
Ankle-joint	12	12	0	30	29	1	42
Shoulder-joint	2	2	0	3	3	0	5
Arm	14	14	0	6	5	1	20
Forearm	13	12	1	10	10	0	23
Wrist	7	7	0	0	0	0	7
Total	83	81	2	139	129	10	222

cause of death in each of the twelve fatal cases. The mortality is 5·4 per cent., for injury 2·4 per cent., for disease 7·1 per cent. Now let us examine the precise cause of the twelve deaths in this table.

Injury.

1. Thigh. The only death after a primary amputation. A man. Died in a few hours from shock and loss of blood.

2. A man, admitted with tetanus from a crushed hand. Forearm amputated. Died in twenty-four hours from tetanus.

Disease.

3. Amputation at hip. A woman aged twenty-one years, whose hip had been excised a year before. Had albumen in her urine. Died in eight hours.

4. Amputation at hip. Man, aged fifty years, much run down by long-continued suppuration. Died in a few days from exhaustion. No sign of blood poisoning.

5. Amputation at hip. Man, aged thirty years. The same remarks apply to this as to the preceding case.

6. Thigh. Man, aged forty-six years, suffering from phthisis and suppuration of knee-joint. Died in seven weeks from phthisis.

7. Thigh. Man, aged fifty-three years. Amputation

through middle third for spontaneous gangrene of foot and leg. Died in forty-eight days from recurrence of gangrene.

8. Thigh. Man, aged sixty-two years. Limb amputated close to hip for long-standing necrosis of femur. Died in a few days from exhaustion.

9. Leg. Man, aged sixty-two years. Amputated just below the knee for ulcers on both legs of twelve years' standing. Died of pyæmia. Infection probably arose from ulcer on other leg.

10. Leg. Man, aged fifty-five years. Amputated just below the knee for spontaneous gangrene of foot. Died from recurrence of gangrene of the stump.

11. Ankle. Old man, just recovered from typhus. Spontaneous gangrene of both feet. One removed at ankle-joint. No attempt at repair. Death in a few days from inanition.

12. Arm. Woman, aged seventy-seven. Admitted from a workhouse with suppuration of the elbow and bed-sores. No attempt at repair. Death in a few days from inanition.

If we compare the above tables we are struck by two circumstances. 1. The mortality from amputation has fallen from 10·6 per cent. during the first period to 5·4 per cent. during the second. This I consider most satisfactory. 2. The usual relative mortality of amputation for injury observed in the first table is reversed in the second. In the first, 18·4 per cent. of the amputations for injury and 5·2 per cent. for disease were fatal, but in the second 2·4 per cent. from injury and 7·1 per cent. from disease died. This is an unusual and remarkable experience. I believe both results to be due to the almost entire absence of pyæmia. Blood poisoning was the great cause of death after amputation. It has almost ceased to operate with us. Consequently the mortality from amputation generally has fallen, with the result that in cases of disease amputation is now resorted to where formerly it would have been refused. A glance at the causes of death I have just given in detail will, I think, support this view. Amputation at the hip in the adult is a very fatal procedure; so is amputation for spontaneous gangrene. Six of the twelve deaths recorded followed such operations, and I question whether some years ago any of them would have been performed. I have been much struck by the following quotation and table from the last edition of Mr. Erichsen's work on surgery:—

"In the following table may be seen the results of 307 consecutive cases of amputation performed at University College up to May, 1871. Of these, 79 died, yielding as nearly as possible a mortality of 25 per cent.

Seat.	Injury.			Disease.		
	Cases.	Deaths.	Per cent.	Cases.	Deaths.	Per cent.
Thigh	39	23	59·0	86	18	20·9
Leg and foot ...	44	14	31·8	74	10	13·5
Shoulder and arm	12	5	41·6	24	8	33·3
Forearm	8	0	0·0	20	1	5·0
	103	42	40·7	204	37	18·1

Our experience in Newcastle at the present day is very different; for, as will be seen from Table III., we have had 382 consecutive operations with 29 deaths (7·5 per cent.)

TABLE III.—*Major Amputations treated Antiseptically in the Newcastle-on-Tyne Infirmary from April 1st, 1878, to December 31st, 1886.*

——	For Injury.			For Disease.			Total.
	No.	Recov.	Died.	No.	Recov.	Died.	
Hip-joint	0	0	0	11	6	5	11
Thigh	26	20	6	91	85	6	117
Knee	7	6	1	5	5	0	12
Leg	41	37	4	50	48	2	91
Ankle-joint	16	16	0	46	45	1	62
Shoulder-joint	5	5	0	5	5	0	10
Arm	25	23	2	12	11	1	37
Forearm	21	20	1	14	14	0	35
Wrist	7	7	0	0	0	0	7
Total	148	134	14	234	219	15	382

Mortality 7·5 per cent.

I would further point out that Mr. Erichsen's table contains no amputation at the hip or at the wrist, while the Newcastle table has 11 amputations at the hip with 5 deaths, and 7 at the wrist with no death. If these cases were excluded from the Newcastle table, the number of amputations would be 364 with 24 deaths—a mortality of 6·5 per cent. Mr. Marcus Beck tells me there has been no death from pyæmia after an amputation in University College Hospital since 1880, so that I entertain no doubt the mortality there since May, 1871, will be found to be very considerably less than 25 per cent.,—possibly even lower than with us.

CASES OF

GUNSHOT INJURIES, WHICH OCCURRED AT SHWEBO, UPPER BURMAH.

BY JOHN LUCAS, M.D., F.R.C.S., &c.

(Compiled from notes taken at the time by MR. E. MURPHY.)

CASE 1.—Private W. D——, Royal Welsh Fusiliers, was wounded in action on Dec. 27th, 1885, at Zeedaw (three miles from Shwebo), the distance at which the injury was inflicted being about twenty yards. The bullet (a large, irregularly-rounded piece of lead), entered below the outer third of the left clavicle, and made its exit at the lower part of the posterior margin of the deltoid muscle, passing through the humerus, about two inches below its neck, causing a compound comminuted fracture. The large vessels and nerves escaped injury, as also the shoulder-joint, with the exception of a continuation of a splinter into it. Chloroform was administered, and an exploratory incision made, and the wound of exit was enlarged to permit of the removal of some loose spiculæ of bone. The wounds were then dressed antiseptically, and the arm placed on a splint. The patient, who was a strong and healthy young man, suffered very little from shock, and there was but little loss of blood from the time of the injury to the completion of the exploratory operation.—Dec. 28th: The patient had a fair night's rest after a hypodermic injection of morphia (half a grain). The wounds were re-dressed. Evening temperature 100°.—29th: Wounds re-dressed. Had a fair night. Wounds looking well, discharge being slight and sanious. Morning temperature 99·4°; evening 100·4°.—31st: On removing the dressings the discharge was found to be free and purulent, and had a slight odour. There was a considerable amount of swelling of the arm and tissues covering the joint. Some small sloughs were found in the anterior wound and removed. The patient was restless during the night and wandered slightly. Morning temperature 101·4°; evening 102°. The wounds were syringed out with strong carbolic lotion, a drainage-tube inserted, and dressed.—Jan. 1st, 1886: The patient had a very good night after a hypodermic injection of half a grain of morphia; felt no pain; discharge free and without smell. Morning temperature 98°; evening 99·2°.—7th: Quantity of discharge very great, but without any offensive odour. The patient was much pulled down, though he took nourishment well. A mixture of iron and quinine to be taken thrice daily, and six ounces of port wine ordered.—20th: Patient continued to do fairly well. It was subsequently reported that the wounds had quite healed, and that there were prospects of a fairly useful limb.

CASE 2.—Private C. C——, aged thirty-two, Royal Welsh Fusiliers, was also wounded at Zeedaw on Dec. 27th, 1885. The bullet passed into the right thigh, about four inches below Poupart's ligament and about two inches external to the course of the femoral artery. On examination the femur was found to be fractured near the surgical neck; the bullet could not be found, but was supposed to be lodged in the bone or in the soft tissues immediately behind it. There was a good deal of hæmorrhage at the time of injury, which was controlled by pressure, and the patient suffered considerably from shock. The patient was a spare, sickly man, and had suffered much from fever when in India. Stimulants were given to rally him from the shock, and the wound lightly dressed. The wound was about the size of a four-anna piece, and would barely admit the first joint of the little finger.—Dec. 28th: The patient had a fair night after the administration of a hypodermic injection of morphia. Pulse still feeble; morning temperature 97·6°. Takes nourishment well. The dressings were changed. There was little discharge, but the whole thigh was immensely swollen.

Evening temperature 99·2°.—29th: The patient looked brighter this morning; had a fair night; pain not severe. Morning temperature 99°; evening 101·2°.—30th: The patient was very restless during the night; complained of severe pain in the hip-joint. Discharge from wound free and purulent. Bowels moved once after an enema of warm water. Morning temperature 101°; evening 101·4°.—Jan. 1st, 1886: During the night severe spasms came on in the injured limb, clonic in nature, and recurring every few minutes. During the spasm the muscles on the outer side of the thigh were drawn up, and caused great agony. The swelling had much increased, and the discharge was very profuse, being jerked through the wound with each spasm. The patient's body was bathed in a cold clammy sweat; pulse feeble and wiry, and very quick; the face had an anxious, scared look. The muscles of the jaw and other parts of the body were quite free from spasm or stiffness. Dressings changed. A hypodermic injection of half a grain of morphia to be given every three hours; stimulants and nourishment to be kept up.—2nd: The spasms continued, were more frequent, and were aggravated by the slightest movement of the patient himself or anyone near him. The effort to drink would bring on a severe spasm. The patient continued thus to suffer great agony till 8 P.M., when he expired from pain and exhaustion. The tetanic spasms were confined to the injured limb up to the last. No post-mortem could be held, nor in any of the following cases.

CASE 3.—Private S. G——, aged twenty-four, was wounded at Yatha on January 12th, 1886, the bullet entering at the left shoulder about half an inch below the centre of the spine of the scapula; and, judging from the man's position when hit, which was lying and facing the enemy, the missile passed downwards, forwards, and somewhat inwards, and lodged in the left lung (the exact site of which could not be traced). The hæmorrhage from the wound was slight, but pain was complained of and referred to the posterior surface of the heart; and there was a good deal of anxiety manifested by the patient, with the subjective feeling that the heart itself had been injured. A hypodermic injection of half a grain of morphia was given, but without much effect. A broad roller bandage was applied round the chest, and the wound lightly covered with carbolised lint. He had to be carried in a dooly two long marches to Shwebo, which he bore fairly well. He spat up some blood, and showed symptoms of acute pneumonia on the third day of the injury. On physical examination, a considerable amount of emphysema was observed on the fourth day in the muscles of the left side of the back, indicating the escape of air from the injured lung. A clear tympanitic note on percussion over the left lateral part of the thorax pointed to the occurrence of pneumothorax, and there was collapse of the left lung, as shown by dyspnœa, restlessness, rapid respiration, &c. The decubitus was that of orthopnœa. The above was the condition during the first four days of the receipt of the injury.—Jan. 17th: Patient scarcely slept during the night, though he had an opiate; respiration difficult; pain in the chest very great; pulse hard and wiry; skin hot.—18th: The man was very restless; respiration more difficult; he could not articulate on account of the severity of the dyspnœa; pain in the chest severe and constant; pulse feeble and quick, and body bathed in cold sweats. Opiates were continued, but without much effect.—19th: The patient was getting exhausted from pain and sleeplessness, and gradually sank.

CASE 4.—Private C. D——, aged thirty-two, was wounded at Zeedaw on Dec. 27th, 1885, by two bullets, the first entering the left groin immediately over the centre of Poupart's ligament. The man feeling himself wounded, called out to a comrade for assistance, and as he was turning to the left he received a second bullet in the abdomen, about two inches below and to the right of the umbilicus. The hæmorrhage from the first wound was very severe, and was controlled with difficulty by a pad and pressure. The wound in the abdomen was a small one, of the size of a four-anna piece. The little finger could be passed into it up to the first joint. There was no protrusion of gut or omentum, though these could be seen. The destination of the bullet in both wounds could not be discovered. The patient suffered severely from shock; he could not pass urine, and only a few ounces of it, which was clear, were drawn off with a catheter. Pulse feeble and thready. Stimulants were given freely, but the patient never rallied, and died ten hours after the infliction of the injury.

CASE 5.—Corporal J. C——, aged twenty-nine, was killed at Zeedaw on Dec. 27th, 1885. The bullet entered the chest immediately below the inner third of the left clavicle, grazing its lower border, wounding the subclavian artery, and lodging in the muscles at the root of the neck. Before assistance could be rendered the man died of hæmorrhage. The distance at which the injury was inflicted was very close (about fifteen yards).

CASE 6.—Private D. R——, aged twenty-seven, was wounded at Zeedaw on Dec. 27th, 1885. The bullet passed deeply through the calf of the leg, entering at the inner side close to the edge of the tibia, and about two inches below the tuberosity, and making its exit about four inches below the lower angle of the popliteal space, a little external to the middle line of the calf, passing in a direction outwards, downwards and backwards. There was a considerable amount of swelling about the leg and foot, and the pulsation of the posterior tibial or dorsalis pedis arteries could not be felt; there was also some swelling of the tissues over the knee-joint, but the joint itself did not seem affected. There was considerable hæmorrhage at the line of injury—easily controlled, however, by pressure.—Dec. 28th: Dressings changed. Parts much the same. Had a fair night after the administration of a hypodermic injection of morphia.—29th: A quantity of sanguineous serum exuded from the wound on the removal of the dressing. Complained of inability to pass urine; a No. 8 catheter was passed, and a few ounces drawn off.—30th: Swelling much diminished; discharge from wound slight and purulent; appetite fair; bowels moved after an enema. Morning temperature 102°; evening 102·4°.—31st: Patient slept well after a hypodermic injection of morphia. Condition of leg the same; discharge free. Morning temperature 100°; evening 100·8°.—Jan. 4th, 1886: Patient doing well. Suffered from a little diarrhœa yesterday, treated with an astringent. Wounds doing well and discharge healthy.—7th: The discharge has become putrid, and, some sloughs having separated, a large cavity was disclosed in which the posterior border and surface of the tibia were seen denuded (over a large area) of periosteum. From the position in which the patient *would* keep the limb, which was with the knee bent, whilst lying on his back, the pus descended along the muscular intervals and along the interosseous membrane, and a deep and large abscess was formed. The limb was bandaged tightly from below upwards, which proceeding caused a large quantity of putrid pus to exude through the wound; the cavity was then syringed out with carbolic lotion, the bandage, which had been removed to syringe the cavity, replaced, and the limb placed on a straight splint.—12th: The discharge from the wound was now much less offensive, and its quantity less. The swelling in the calf of the leg had almost disappeared. The patient was rather anæmic, and had lost much flesh. Quinine and iron were ordered to be administered.—15th: The patient was now on a fair road to recovery; his appetite was good, he slept well, and, though an ugly-looking cavity still remained, hopes existed that it would soon fill up. The man left Shwebo in this condition, and no reports have been received concerning him since his departure.

CASE 7.—Private W. T—— was wounded at Zeedaw on Dec. 27th, 1885. The bullet entered the left arm an inch and a half below and internal to the olecranon, and passed in a direction upwards, forwards, and outwards, passing through the elbow-joint; it lodged immediately under the integument about three inches above the external condyle of the humerus, where a small longitudinal incision was made and the bullet extracted. The pulsation on the radial artery was distinct, and there was little bleeding from the wound. A drainage-tube was inserted into the lower wound, and the arm placed on an angular splint. On probing the wound rough bone could be felt, but no separate fragment, nor could the probe follow the course of the bullet for more than two inches.—28th: Swelling about the elbow-joint considerable, discharge consisting of a little pus and synovial fluid. Pain severe during the night. Morning temperature 100°; evening 101·4°. The wounds were re-dressed, and the whole arm and forearm wrapped in spongio-piline wrung out in hot water.—29th: Swelling of joint much diminished; discharge free and purulent. The patient slept well after a hypodermic injection of morphia, and the pain was less severe. Morning temperature 100°; evening 100·8°.—Jan. 7th, 1886: Patient continues to do fairly well. Appetite fair. The temperature is now normal. The swelling about the joint has quite disappeared,

and the wounds are discharging healthy pus. The patient is much pulled down, and looks very anæmic. Quinine and iron were administered.—15th: The patient's condition is much the same; wounds still discharge a quantity of pus, which now has a slight odour and looks less healthy; no fever; appetite fair; takes a little exercise in the open air. Shortly afterwards the patient left the station, with fair prospects of ultimate recovery, though the joint would probably be stiff and useless for a long time to come.

CASE 8.—Private G. D——, aged twenty-four years, was wounded at Zeedaw on Dec. 27th, 1885. The bullet entered the right forearm over the insertion of the tendon of the biceps muscle, and passed upwards, backwards, and outwards through the elbow-joint. One piece of the bullet was extracted from the wound, along with some débris of bone; another piece was found a few days after about half an inch above the external condyle of the humerus, embedded in the triceps muscle, near its insertion. The biceps tendon and vessels in the angle of the elbow escaped injury. There was not much bleeding at the time of injury. The limb was placed on an angular splint, and the wounds dressed antiseptically.—Dec. 28th: The arm was very painful, and much swollen; a hypodermic injection of morphia had not much effect in producing sleep. The arm and forearm were wrapped in a large piece of spongio-piline wrung out in hot water.—Jan. 1st, 1886: Swelling rather less. Arm still very painful; discharge consisted of pus and some synovial fluid. Morning temperature 100°; evening 100·8°.—3rd: On this day a second piece of lead was discovered and removed. Patient much the same. Evening temperature 101·2°.—4th: Swelling somewhat less than yesterday; some débris of bone daily removed; discharge not offensive at this time. Pain considerable, and he could not sleep well, though hypodermic injections were given nightly. Morning temperature 100°; evening 100·4°.—12th: Discharge looking healthier; swelling slightly less. The patient was looking anæmic, and had lost much flesh since the injury occurred. He left this station shortly afterwards in the condition above described.

CASE 9.—Lieut.-Colonel R. S—— was wounded at Yatha on Jan. 12th, 1886. The bullet entered at the right cheek, just below the outer border of the malar bone. It caused a wound about the size of an eight-anna piece, from which there hung a shred of the facial nerve, which had been divided, causing facial paralysis. The facial artery was also divided, which gave rise to severe hæmorrhage on the field. It was controlled by digital pressure on the proximal portion of the artery as it crosses the lower border of the maxillary bone. The hæmorrhage caused considerable prostration, and rendered any attempt at searching for the bullet futile. The wound was dressed lightly with carbolised lint, and a hypodermic injection of a quarter of a grain of morphia given. This, not having much effect, was followed by a grain of opium three hours later.—Jan. 13th: A slight undefined swelling was discovered in the neck, a little behind and below the right mastoid process. It was thought that this was the bullet, so an incision was made over the swelling and a thorough search made, but no bullet could be discovered. It was then thought probable that the bullet must have lodged behind the right zygomatic process, where it was resolved to leave it for the present or until some sure sign pointed to its exact site. There was no injury to any bone apparent, and on examining the part through the mouth no trace or sign of a bullet could be detected.—20th: The patient recovered from the prostration caused by the hæmorrhage and could move about. The disfigurement caused by the facial nerve being divided was much less marked. The wound was open and discharged daily a small quantity of healthy pus. In this condition the patient left the station for England. No account of him has since been received.

CASE 10.—Lieutenant G—— was wounded at Yatha on Jan. 12th, 1886. The bullet passed through the fleshy part of the thigh about three inches above the patella, in a direction backwards and inwards to the inner side of the femur, the vastus internus muscle being pierced. There was no constitutional disturbance in this case, and very little hæmorrhage, though for a few days there was slight swelling, and a little heat was felt about the injured part. The wounds were dressed antiseptically, and the limb placed on a splint. The case progressed well, the wounds being nearly healed when the patient left the station on the 21st.

CASE 11.—Lieutenant L. C—— was wounded at Yatha on Jan. 12th, 1886. The bullet passed through the skin and subcutaneous tissue of the popliteal space of the right leg, making a wound of entrance and one of exit, and leaving a narrow isthmus of skin and subcutaneous tissue between them. The tendons in the popliteal space were uninjured, though one of them was exposed. There were no untoward symptoms, and the wounds quickly healed, leaving only a temporary stiffness of the part. It is noteworthy that in this case and in the former cases where a bullet had made its exit, the wounds of exit were in no case larger than the wounds of entrance; on the contrary, they were in many cases smaller.

SURVIVANCE AFTER GUNSHOT WOUNDS OR OTHER INJURIES OF THE HEART.

BY BRIGADE-SURGEON W. CURRAN,
ARMY MEDICAL DEPARTMENT (RETIRED).

(*Concluded from page 674.*)

OF even greater interest than either of the foregoing cases is one recorded in the Army Medical Department Reports for 1875, p. 286, which I am induced to summarise here, as I am enabled, by the courtesy of the War Office authorities, to submit at the same time an illustration of it. The particulars of it stand briefly thus: A naval officer, who had been wounded at Taranaki, New Zealand, on March 28th, 1860, was brought on board the hospital ship *Victor Emanuel* at the Gambia (?) from the front, on the evening of Jan. 24th, 1873-4, in a state of great prostration from remittent fever. His illness commenced with a violent diarrhœa, and the symptoms on admission were great prostration, feeble husky voice, irritable stomach, and cold, clammy skin. The pulse, which stood at 120 when he was first seen, ran up to 128 a few days subsequently, and he became delirious soon afterwards.....He expired on the morning of the 27th, and on section four hours afterwards a small hard heavy circular body, about half an inch in diameter (which, on examination proved to be a leaden bullet), was found encysted outside the pericardium, above the right ventricle, and between the origin of the pulmonary artery in front, and the arch of the aorta behind. This position corresponded so closely with the cicatrix of the wound referred to above as to leave no doubt as to their relationship, and on a closer inspection this bullet was found to be of the usual New Zealand pattern. It had, as we might expect, undergone some alteration, and it was firmly fixed in its place by fibrous bands, that enclosed it in the interspace between the aorta and the pulmonary artery.

Fig. 2 is a drawing of the preparation, showing the bullet *in situ*, resting on the pericardium, and between the aorta and the pulmonary artery.

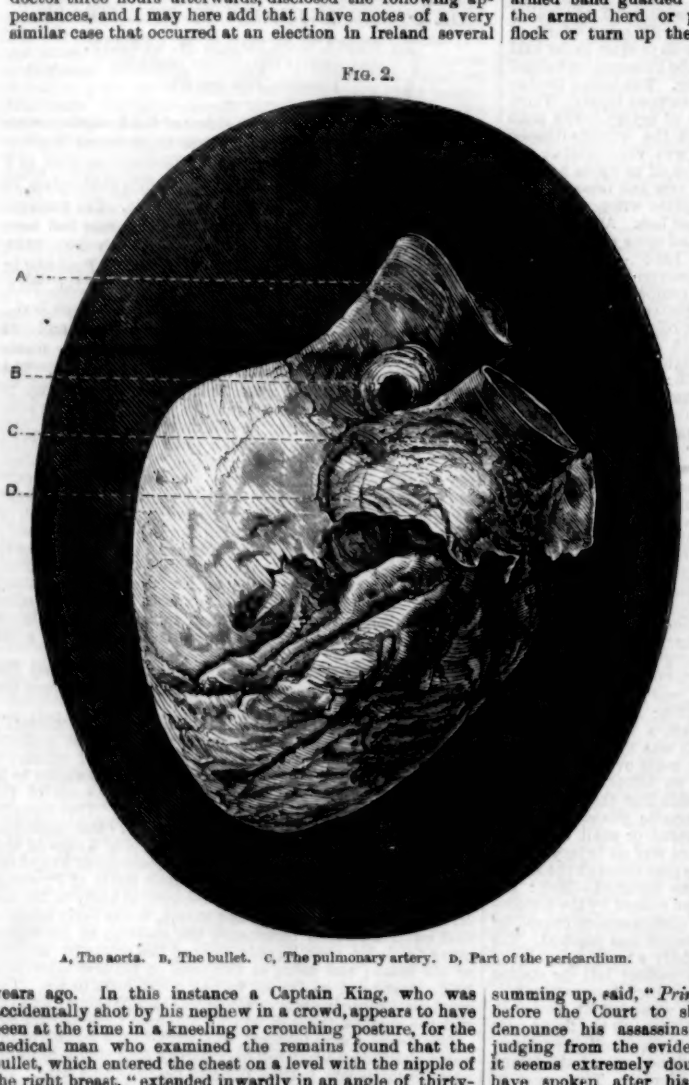
As to my own connexion with this matter, it is necessarily very limited. Limited, however, though it be, it includes the case to which I have already adverted, and which—if we may accept the descriptions of it that were sworn to in a court of justice—may be fairly regarded as one of the rarest of its kind in the literature of our art. This description will be more fully set forth hereafter; and meantime I may be here permitted to give a brief note of a case of this kind that was given me *viva voce* many years ago at Shajehanpore by that very shaky subject, the then Rajah of Puwaine, near Moradabad. This man had behaved so badly to Mr. and Mrs. Probyn, Mr. Edwards, and others, in the early crisis of that outbreak which threatened the stability of our supremacy in India, that he only escaped the halter by the skin of his teeth; and being at this time on his best behaviour, he condescended so far as to pay court even to me. This was how the interview between us was brought about, and this was the medium through which I obtained these particulars.

One Beeka, a syce (groom), was, while in the service of this petty chieftain, in putting his master's long single-barrelled pistol into his left holster, done to death in this wise. The edge of this holster—a coarse native one—having caught the cock of the pistol while the latter was descending into it, forced it back and so "set" it. Seeing this just as he had mounted, the Rajah endeavoured to replace it in its proper position and thus caused the pistol to explode. The syce, who was at this critical moment standing by his horse's head, or rather who was adjusting the stirrup to his master's shoe, was just in the position to receive the contents of this weapon. Accordingly, after grazing the back

of his right hand and passing through the metacarpal bone of the thumb and index finger of the left hand, it emerged through the soft part of the palm of this member without further injury to any of its tissues. It then entered the chest between the fifth and sixth ribs on the left side, two inches and a half to the right of and one inch below the left nipple, and then finally made its escape lower down between the eleventh and twelfth ribs of the opposite side posteriorly. Beeka survived this injury for nearly fifty-two hours, and then died quietly of internal hæmorrhage and exhaustion.

A necropsy, that was instituted by, I presume, a native doctor three hours afterwards, disclosed the following appearances, and I may here add that I have notes of a very similar case that occurred at an election in Ireland several years ago. In this instance a Captain King, who was accidentally shot by his nephew in a crowd, appears to have been at the time in a kneeling or crouching posture, for the medical man who examined the remains found that the bullet, which entered the chest on a level with the nipple of the right breast, "extended inwardly in an angle of thirty-five degrees down to the heart," and it was afterwards shown that though the two chambers of the heart had been pierced, yet that Captain King "did live and walk after he had received this wound."

FIG. 2.



A, The aorta. B, The bullet. C, The pulmonary artery. D, Part of the pericardium.

On removing the integuments of the chest, it was found that after this bullet had entered the chest, as above, it then skirted and slightly wounded the lower margin of the left lung. Then, entering the pericardium low down, it took away, without entering its cavity, about a quarter of an inch of the wall of the left ventricle. Passing thence through the diaphragm to the left of its crus, it grazed the stomach, and finally escaped from the body in the interspace already indicated.

Passing now for a moment to that valley[1] which has been the scene of so much change and contention, so much anarchy and bloodshed in the past, and which has also witnessed the curious case I have already adverted to, I must premise, by way of introduction to this, that blood feuds, the heritage of ages and the scourge of families, have ever been rife in it. So envenomed has this custom become that every village in it had once its watch-tower, whence an armed band guarded the growing crops, and whence also the armed herd or ploughman went forth to tend his flock or turn up the soil. So inveterate was it at one time, or may be still, that, as Dr. Bellew observed, the very cattle of opposing tribes or factions are afraid of one another, while the children crawl cautiously by the walls of their houses, rather than pursue their frolics in the open field. The atmosphere of the place savours, in short, of distrust and suspicion; every office or relation of life is imbued or embittered with them; and it was in one of these village feuds that the case occurred which I have more than once already indicated, and with which I will now close this series.

A man named Meera Khan was tried in the Court of Sessions at Peshawur on September 16th, 1873, before Mr. Elmslie, for murder, under the following circumstances. Blood feuds, handed down from generation to generation, are, I may observe, not uncommon in this locality. A native named Kadir, having been shot while lying on his cot on the night of June 2nd, 1873, made a dying statement before witnesses to the effect that Meera Khan had shot him while Muddut, Meera Khan's brother, was standing by. The motives for the perpetration of this crime were revenge and jealousy, and the police-sergeant who arrested the prisoner "found him lying on a bed in his house. He had his payjamas (drawers) drawn up for an inch or two. . . . I at once put my hand on his heart," continues the sergeant; "it was beating perceptibly. I said, 'Why is your heart beating?' He replied that he had come in from work tired, and had therefore lain down with his trousers slightly tucked up, and he added that his heart was beating because I had arrested him. I then told him that he was charged with murder." The sub-assistant surgeon who examined the body deposed to the presence of two bullet wounds in the heart, and Mr. Elmslie, in summing up, said, "*Primâ facie*, there is sufficient evidence before the Court to show that the wounded man did denounce his assassins just before he died . . . . but, judging from the evidence of the sub-assistant surgeon, it seems extremely doubtful whether the accused could have spoken after his heart and left lung had been perforated in four places."

The following is a *verbatim et literatim* copy of the certificate of death that was given in the case by the subordinate here referred to: "I, Chetun Shah, sub-assistant surgeon of Peshawur, on the 2nd of June, saw Kadir (or examined). He bore the mark of a bullet in the right arm, and the back

[1] For additional information about this valley, its geology, topography, &c., see my paper on Peshawur Fever that appeared in the Indian Annals of Medical Science for July, 1876.

of the hand was black. Two bullet wounds were apparent on the left side, on the side of the heart, which organ they had penetrated. The heart was, in fact, wounded in four places, from which he died immediately. His shirt was burned, and these bullets must have been fired from very near. There must have been two shots, no more, from either a double barrel or a single barrel."

While putting the evidence before the assessors, Mr. Elmslie said that Chetun Shan "wrote on the 2nd of June, just after inspecting the body, that death must have been instantaneous." Mr. Shah, however, slightly modified this opinion subsequently, and said that "death must have occurred very shortly after the infliction of the wound"; and a medical man who was referred to in the matter said that "the phraseology describing the nature of the wounds is so vague, that it is impossible to base an opinion thereupon as to the power of the deceased to have recognised his assailants, and to have spoken after the infliction of the wounds." The point then turned on the possibility of the deceased's "living for some minutes and speaking intelligently or recognising his assailant." The certificate (covering letter 3) given by the sub-assistant surgeon on the 2nd of June runs as follows: "—— begs to report that the cause of death in this case was a bullet wound passing through the right hand front wall of the chest, heart, the left lung, and the chest wall on the other side. Four bullets that have been found embedded under the skin of the chest wall are herewith forwarded. Death must have been instantaneous."

This functionary added, in another examination that was held before the magistrate, that the heart itself was perforated in two places: "I do not mean by two bullets, but by four, as the marks of entrance and exit were visible in four places. Two bullets had entered the right auricle and two had entered the right ventricle. The bullets went direct through

FIG. 3.

These slugs or bullets weigh between them 11 drachms and 48 grains. The largest of them weighs 3 drachms and 56 grains.

the heart, and not in a slanting direction through the fibres. The edges of all the bullet wounds were ragged to some extent, not quite sufficient to close the openings. The pericardium was full of blood, and the cavity of the chest on the left side was also full of blood. The left lung was perforated, but this would not affect the power of speech immediately." There appears to have been some confusion, if not contradiction, in these statements, but for this I am in no wise responsible. I give the particulars of the case as they were given to me. (See Fig. 3.)

Paraphrasing Mr. Shah's evidence, the magistrate continues to say that "it does not seem impossible that he (the deceased) could have spoken after he was shot, but it is not probable. There are instances of men having lived for some hours after having been shot through the heart, and the lacerated edges of the wounds in this case may, to some extent, have impeded the escape of blood from the heart, and so prolonged life to some extent. It is quite impossible that deceased could have carried on a lengthened conversation, but it is quite possible that he may have said a few words. The wounds would not affect his power of speaking intelligibly, supposing that he was able to speak at all. I have no doubt that he was able to open his eyes after he was shot, but whether he was able to recognise his assailants or not would depend entirely upon the amount of light. With regard to the word 'instantaneous' used in my docket, I merely meant that death must have occurred speedily."

The acting civil surgeon, Dr. Andrew Skeen,[2] endorsed this opinion in the main, and otherwise delivered himself in the matter as follows:—"I have heard the statement of sub-assistant surgeon Chetun Shah, and concur with him. In the case of a wound of the heart in cases where the shock is not the immediate cause, death usually occurs from the escape of blood into the pericardium, thereby impeding the heart's action; but in this case, from the evidence of the sub-assistant surgeon, it would appear that the flow of blood was to some extent retarded by the jagged edges of the wounds. The bullets moreover—which are before me—are small. I think it possible that the man may have given intelligent answers for a short time after he was shot—a very short time. Several cases are on record where severe wounds of the heart have not been followed by death for some hours, both gunshot wounds and stabs. Dr. Taylor quotes cases in which men shot through the heart have lived for some hours."

The assessors, Ram Dos and Mahrdil Khan, were of opinion that, according to the evidence, both the accused are guilty. They think that the deceased was able to take the names of his assassins, and that he probably saw them. The judge, Mr. Elmslie, after reviewing the evidence, which he considered conclusive against the accused, held: 1. That the deceased immediately on being wounded denounced both of the accused, and said that he had seen them. Also, that there is no reason to suppose that he spoke falsely. 2. That one of the witnesses, Sheemo, saw the accused retreating from the bedside of deceased immediately after the shot had been fired. 3. That Muddut came up shortly afterwards. 4. That the state of his clothes (Meera Khan's), and the beating of his heart, are strong grounds for supposing that he had been running shortly before. He then sentenced Meera Khan and Muddut to be hanged, and ordered that their property of every description be confiscated under the provisions of Section 6, Indian Penal Code.

An appeal having been lodged against this decision by the friends of the accused, the case came before the judges of the High Court at Lahore, who reversed the sentence mentioned above. Mr. Lindsay, who re-tried the case, acquitted both prisoners on the merits; and, after giving his reasons for this judgment, wound up the statement he made respecting it by saying that "the deceased's death was very sudden from the very nature of the wound inflicted, and it is open to doubt whether he spoke at all after being shot. He may have uttered a cry." And there the matter ended so far as the legal authorities of that province—the Punjaub—were concerned. I will only here add, that the first judgment was, in my humble opinion, the juster of the two, and it accords with my own personal experience and reading, that wounds of this kind are by no means so speedily or necessarily fatal as is generally supposed.

Bibliography.—To save time and space, and enable any reader who may desire to pursue this inquiry further to do so, I subjoin below a list in alphabetical order of the books or papers on which this essay is based, or to which more or less reference has been made in the course of it:—Army Medical Department Reports for 1873, vol. xv., p. 286. Art. "Heart," in Todd's Cyclopædia of Anatomy and Physiology. Barrington (Sir Jonah): Personal Sketches of his Own Times, vol. i., pp. 303-4. Bellew (H. W.): Journal of a Political Mission to Afghanistan in 1857, &c. The Book of Remarkable Trials and Notorious Characters, p. 363. Clark (F. Le Gros): Lectures on the Principles of Surgical Diagnosis, p. 247, &c. Cbelius, translated by South, vol. ii., p. 96, &c. Chevers: A Manual of Medical Jurisprudence for India, and also his Commentary on the Diseases of India, p. 487. Dixon (Hepworth): Her Majesty's Tower, vol. iii., pp. 226-7. Holmes: A Treatise on Surgery, p. 195 (this contains a good account of the symptoms that are produced by wounds of this description). Edwards (Sutherland): The History of the Opera, vol. ii., pp. 190-3. Egan (Pierce): Anecdotes of Persons in every Walk of Life, p. 130: he quotes with surprise from the *Edinburgh Medical Journal* of the day the "Singular circumstance of a ball that was lodged (for a long period without injuring the animal) in the heart of a buck." Elphinstone: Cabool. Haller: Elementa Physiologiæ. Howell: Familiar Letters. Hume: History of England, vol. v., p 78, and vol. vi., pp. 260-1. The *Indian Annals of Medical Science* for October 1853, pp. 289-296; in this instance the ball probably entered the heart through one of the pulmonary veins; Dr. Chevers and Burton Browne could in no other way account for this phenomenon. *The Journal of Anatomy and Physiology*, vol. xx. James, Major, H.R.C.B.: Report on the Settlement of the Peshawur Valley (the best of its time), p. 5, &c. Philip (A. P. W. Wilson): An Inquiry into the Nature of Sleep and Death, pp. 68-9. Porter: The Surgeon's Pocket-book. Taylor (Swaine), M.D.: Medical Jurisprudence.

[2] This kindly gentleman and very promising officer died, I regret to say, since I left India; and as regards further examples of this lesion, Dr. Bolleau kindly informed me, in 1879, that "there are only three other (than the above) cases of heart wound at Netley: A 146, no history; A 147, wound of ventricle; and A 148, surface wound."

Transactions of the Pathological Society of London. Transactions of the Provincial Medical and Surgical Association, vol. ii., p. 357; in this very singular case a lad in whose right ventricle a piece of stick (the breech of a toy gun) was found lived upwards of five weeks. Veron: Les Mémoires d'un Bourgeois de Paris, vol. ii., pp. 147-166. Woodman and Tidy: A Handy-book of Forensic Medicine, p. 1143, who give several cases of this kind from Bell, Sanson, Ollivier, and others.

DR. R. KOCH'S BACTERIOLOGICAL WATER TEST.

BY G. BISCHOF, F.C.S., F.I.C.

No. II.

IN THE LANCET of August 29th, 1885, I communicated a description of Dr. Koch's test after a visit to his laboratory. Since then some not inconsiderable material has been collected, partially the result of practical experience with the method by various experimentalists, partially of inquiries into its reliability; and it now appears appropriate to review the present position of the test.

As a matter of course, only such organisms can be indicated by it as will grow under any conditions whatever in gelatine peptone; secondly, only such as are not crowded out during culture by other microphytes; thirdly, such as will develop, generally speaking, within three days before the liquefying colonies have had time to overgrow the plate; and, fourthly, such as will grow at the temperature of culture. With regard to the first of these propositions, Dr. E. Klein stated in the discussion of a paper read by me last April on the subject before the Society of Medical Officers of Health that, for instance, a micrococcus which commonly occurs in our saliva absolutely refuses to grow in gelatine, and that in one case, where another yielded 150,000 colonies per cubic centimetre, the gelatine-peptone test only indicated some 5000, or about 3 per cent. of the former figure. He graphically explained the crowding out during culture of gelatine-peptone plates by stating that it was impossible, in mixed cultivations, nine times out of ten, to recover any pathogenic microphyte, however familiar. The organism of foot-and-mouth disease would only grow in this medium when no other forms were present; and even Dr. Koch's comma bacillus was soon crowded out by Finkler's, by the bacillus of anthrax, or by that which caused the conversion of urea into ammonia. The meaning of this is, that if in a bacterial mixture there exist some microphytes that grow fast and others that grow more or less slowly, the former will in a short time have, so to speak, taken possession of the available ground before the latter had time to take a footing. We have evidence that at least some pathogenic microphytes are likely to be amongst those crowded out, and will thus escape detection. Even after colonies of different microphytes have established themselves on the same plate, they are apt to engage in a fight for supremacy or existence like the most highly organised beings. I may add, from my experience, that Dr. Koch's comma bacillus, after keeping for five months at 18° C. in plugged test-tubes in gelatine peptone, had entirely disappeared from its pure cultures.

Dr. Koch has not, as far as I recollect, laid down a very definite rule as to the temperature at which samples should be cultivated, but in view of the fact that these cultures were made in his laboratory during my visit in the summer of 1885 in a basement room, without artificial heat, I adopted 18° C. The mixture recommended by Dr. Koch just commences to soften at this temperature, whilst even at 20° it is rather too liquid, and apt to give trouble. I am informed that a 10 per cent. gelatine-peptone meat extract (not infusion) may be prepared, which remains solid at 20° or 21° C., but that also this temperature is insufficient for the cultivation of a variety of microphytes must amongst others be concluded from M. Nocard's communication to the Central Veterinary Society of Paris, that the bacillus tuberculosis of birds requires as many as 38° C. for its culture. Such a temperature is obviously out of the question when employing gelatine peptone. Lastly, as regards the time of culture, it is unfortunate that the liquefying colonies generally render distinction of colonies impossible after two or three days' culture. We are thus left in ignorance on microphytes which take longer to develop, as for instance, according to M. Nocard, the bacillus tuberculosis of birds, the culture of which does not commence until the fifteenth day, and requires five or six weeks for full development. The organism of the disease which prevailed at Hendon in the winter of 1884-85, Dr. Klein has informed us, could be cultivated in gelatine but very slowly, and that of foot-and-mouth disease took many days to grow. The more weight should be attached to these considerations as the gelatine test is now mostly restricted to a statement of the number of total colonies. Why are those other subsidiary but important tests neglected which, as described in my first article, were originally recommended by Dr. Koch? Is this because the number of total colonies has in itself proved a sufficient indication in testing potable water, or because those methods failed to answer their purpose?

The question next arises, even if we obtain a more or less reliable figure of the numbers of colonies cultivated from a sample of water, what are we to do with it, how are we to interpret its teaching? In the paper read before the Society of Medical Officers of Health I arrived at the conclusion that the test affords no means of distinguishing between harmless and pathogenic microphytes, and that the number of colonies ordinarily found in water has neither a necessary or invariable connexion with wholesomeness, nor even with pollution. A sample may contain as many colonies as any potable water is likely to contain, and yet I think I proved in the paper referred to that on this account it need not in any way be injurious to health. Dr. Koch is of the same opinion, for he asks in one of his papers (1883): "Shall we declare air, water, or soil, *per se*, injurious to health if they contain a large number of microphytes? This, in my opinion, should not be attempted. We have not as yet succeeded in discovering amongst the many bacteria, which abound in the air, soil, and water, any pathogenic species." After this I confess it is not quite intelligible to me that we should be asked by him in the same paper to style a sample of water "very good," *because* it contained about one hundred colonies per cubic centimetre. In this difficulty the plea is set forth that, although the test may not yield absolutely reliable results by the indication of the number of microphytes present, the comparison of the number of total colonies cultivated in samples of unfiltered and filtered water affords a correct standard of the sanitary improvement effected by the filtration, because a reduction of a certain percentage in the total would similarly reduce the risk of introducing into our system any pathogenic microphytes which may have gained access to the source of water-supply. This seems equivalent to the admission that the test is incapable of giving information on any single sample, but that its scope is restricted to an indication of the relative improvement which may take place in a sample consequent to its purification in some way. Without any absolute standard, even this does not appear an easy task, for with a like number of colonies in two filtered samples, the improvement may in one case be judged very satisfactory and in another less so, the difference, however, being solely due to the worse condition of the unfiltered sample in the former case.

Let us follow this up by a practical case. Both Dr. P. Frankland and I independently arrived at the conclusion on the showing of the test that a variety of filtering media, given a suitable grain, depth of material, and rate of filtration, are capable of producing a remarkable reduction in the colonies, but that the action of spongy iron alone is lasting. This seemed so well to confirm the results previously obtained in a different way by Dr. de Chaumont, Professor E. Heyman, Mr. Frank Hatton, and myself, as almost to amount to a corroboration of the reliability of the test. I am afraid we can only accept this as a chance. Again, Dr. Frankland and I published for many months independent monthly reports on the effect of sand filtration on the metropolitan water-supply, and our figures once more agreed very satisfactorily. I thought right to discontinue my publications when the faith which I had at first in the teaching of these figures began to be shaken; Dr. Frankland still continues his in the water examiner's monthly reports.

How are we to explain a purifying action of sand? I am not aware of any evidence to show that this can essentially consist in anything but a mechanical separation of microphytes. Not one of the known means of destroying them can be supposed to exist in sand filters. Crowding out will take place within them, but its result will only be the annihilation, more or less, of some kinds, those

remaining flourishing so much the more. This, therefore, does not account for the destruction of practically the whole of the microphytes present, which is frequently indicated by the test here in London. Supposing we were to keep such water as is in this case ordinarily passed through the sand filters, in a sterilised glass vessel, protected against aerial contamination, its progeny would in all probability in a few days amount, on the showing of the test, to millions of colonies per cubic centimetre. Can we then understand the teaching of the test that, when we pass the same water month after month through a sand filter, it should continue to come out almost devoid of organisms? Even if we store the filtered water with the few organisms apparently left in it under like conditions as before, the test reveals in a few days thousands and thousands of colonies by self-multiplication, but such water may pervade a sand filter month after month without apparently any increase of life. Again, we know that microphytes grow in a comparatively short time, even through the fine pores of M. Pasteur's filter tubes; that they then frequently render the filtered water biologically more impure than the unfiltered. How is it that they should not grow through the much coarser pores of sand filters, and that those disseminated through them should not similarly multiply? Here we have a conflict of phenomena, which should somehow be explained before the teaching of the test can be accepted without very considerable caution. I am afraid of attempting any such explanation; but it is a biological fact that spores pass through filtering media which are capable of retaining the fully grown organisms. Supposing the latter were retained in sand filters and the former did not develop in gelatine peptone under the conditions of the test, the discrepancy would to some extent disappear; but the numbers of colonies indicated lose all meaning, as a sufficiency of spores might be in a sample to produce serious pathogenic complications even when the test indicated sterility.

I would further ask whether it is safe to argue that because a certain proportion of harmless microphytes, such as ordinarily occur in water, are mechanically separated, a similar proportion of pathogenic organisms would be removed? Let us not forget that we know very little indeed as yet about those pathogenic microphytes, which spread zymotic disease by the medium of potable water. The fact, for instance, that M. Pasteur has not succeeded in detecting the bacillus of hydrophobia, notwithstanding that there seems to be reason to assume its presence in certain liquids, leaves it an open question whether this is not due to a deficiency in the power of our microscopes, or to the diminutive size of the bacilli. I have no proof for this suggestion in the strict sense of the word, but, taking Dr. Koch's statement, "these bacteria, which I have called comma bacilli on account of their peculiar shape, are smaller than the tubercle bacilli," my suggestion is more likely to be correct than the reverse—viz., that pathogenic organisms could neither in size, form, nor habits be distinguished from non-pathogenic. If similar differences in shape as above do occur amongst pathogenic microphytes in water, some may pass through a sand filter which retains ordinary bacilli, similarly, as Professor Helmholtz observed, that the action of yeast did not extend through a membrane, whilst putrefactive bacteria penetrated it.

No doubt great progress has been made during late years in the filtration through sand, but it is curious to contrast the showing of the gelatine test with certain experiments made in 1870. In the thirteenth report of the Medical Officer of the Privy Council, Dr. Burdon Sanderson gives a table from which we calculate the average "zymotic property" of the supply of the London companies before filtration = 7·8, that after filtration (mean of samples from pump well and from main) being = 8·1. Dr. Sanderson naturally draws the conclusion that filtration exercises no perceptible influence on the zymotic power of water. Even practical experience seems opposed to the contrary teaching of the gelatine test; for how can we reconcile this with the experience at Lausen, where there was a more perfect natural filtration than is attainable by artificial means, and yet the morbific principle passed through, causing an epidemic? Nevertheless, the test should on no account be laid aside. If we bear in mind the crude state in which it was first introduced in this country not many years ago by the late Dr. R. A. Smith, and the remarkable improvements since effected by Dr. Koch, there is every reason to hope that, with perhaps slight modifications, it may yet yield all the important hygienic results which all interested in sanitary science must ardently desire.

The following conclusions may be drawn from the preceding observations. 1. The total colonies found by culture in gelatine peptone do not represent the total actually present in a sample of water, but an indefinite aliquot part thereof. 2. The number of total colonies found does not, within a very wide range, justify the rejection of a sample; no more can a sample be relied on as safe if very few colonies only be indicated. 3. The test does not, as a rule, allow of distinction between pathogenic and harmless microphytes. 4. Pathogenic microphytes present in a sample of water are apt to escape detection by being crowded-out by the organisms ordinarily occurring in water. 5. The relative biological purification indicated by the test in samples of water after filtration through sand is at variance with other well-known facts, and should be accepted with caution.

Bayswater, W.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Procemium.

CHARING-CROSS HOSPITAL.

A CASE OF SARCOMA OF THE LUNG FOLLOWING AMPUTATION OF THE RIGHT THIGH SIXTEEN MONTHS PREVIOUSLY; REMARKS.

(Under the care of Dr. POLLOCK.)

FROM the characters of the new growth in the lung in the following case, it is assumed that it was secondary to a primary growth elsewhere. The account which is given of the disease for which the limb was amputated does not mention the presence of anything of the kind as present then, but possibly the growth was very small in amount, and thus its existence was overlooked. It would be interesting to have a full account of the parts removed, with a history of the disease before amputation.

A. C——, aged seventeen, a timid, excitable, delicate-looking girl, was admitted on Oct. 25th, 1886. Her family history was faultless, and her own health up to fifteen years of age uniformly good. In June, 1885, after an illness of some months, she had her right thigh amputated at St. Mary's Hospital for suppurative arthritis following necrosis of the femur, due to periostitis. Her recovery was complete, and her health remained unimpaired until July, 1886, when she began to complain of pain in the left shoulder and left side of the chest. Frequent night sweats and gradual wasting followed. By the end of September she had become too weak to get about, and took to her bed. A week later cough developed, and soon after expectoration of a "dirty-looking phlegm" was noticed.

On admission the patient had a marked hectic flush. She was perfectly conscious, and of average intelligence. She complained of the pain before mentioned, and said that it was now constant, and increased by deep breathing or by any active movement. Her cough was sufficient to disturb her at night, and there was a little dark blood-stained sputum. The upper half of the left side of the chest was enlarged, and distended veins traversed its surface. The movements were diminished over the whole left side, and the prominent region just mentioned was practically motionless, nor could any vocal fremitus be obtained over it. The front part of the chest, from the apex of the lung to the heart, was absolutely dull; and the back, from the supra-spinous fossa to the middle of the scapula, gave a similar percussion note. Immediately below this the resonance was defective, down to the angle of the scapula; below this it was normal. The breath sounds over the greater part of the dull areas were almost inaudible, but here and there distinct bronchial breathing could be recognised. Lower down the breath sounds were weak, and at the extreme base normal. The voice sounds were diminished, but not high-pitched. The right lung was apparently healthy, its normal limits main-

tained. Nothing unusual could be detected in her voice, but on inquiry she said she had been unable to sing for two or three weeks. The left vocal cord was found to be stationary in the cadaveric position. The heart's action was fluttering, and the apex could not be accurately localised, but seemed to be displaced a little inwards. The sounds were clear. The pulse was weak, regular, and bilaterally symmetrical. The digestive tract and the physical signs of the abdomen were quite healthy. The pupils were equal, and reacted normally. The fundus of each eye was healthy. The pain was principally localised at the back of the shoulder and at the elbow. Distinct soreness and tenderness could be made out along the course of the brachial vessels and of the ulnar nerve. The urine was normal. An exploratory needle was passed into the swelling, but blood only was obtained.

The pain gradually increased in severity. On Nov. 3rd a difference was noted between the radial pulses, and on the 5th the left pupil was found to be slightly smaller than the right. On the 15th the left forearm and hand became œdematous. The other symptoms gradually increased, and during the next two months the patient became continuously weaker. The pain grew more intense, the enlargement increased, hard glands were felt above the clavicle, and the whole region became very tender; the inequality of the pupils was also more marked. On Dec. 30th numerous swellings scattered over the hairy scalp were noticed for the first time. They were circular and regular in outline, and varied in size from a hemp-seed to that of a small walnut. The swellings were tender, painful, rather elastic, and moved with the scalp. The patient thought they had been coming for several weeks. They were certainly not present on admission. On Jan. 14th she became restless and talked incoherently. Unconsciousness supervened at 2 A.M. on the 15th, and death occurred three hours later. Her temperature during the first month was uniformly maintained between 100° and 101°, but occasionally oscillated from 98° to 104°. During the last six weeks the range was from 99° to 100·4°. The physical signs remained unaltered in character, but gradually increased in extent.

Necropsy.—The upper lobe of the left lung extended across to the right side of the sternum, and consisted of a solid mass of new growth. Below this the heart was exposed as much as usual. The lower lobe of the lung was the healthiest part. The right lung contained many new growths, and there was half a pint of bloody serum in the pleura. The left lung was removed with much difficulty; the new growth in the upper lobe infiltrated the chest wall largely, and extended up into the neck between the scalene muscles, so as to press upon the brachial plexus and surround the subclavian artery. The arch of the aorta was also embedded in the mass, and several of the ribs were eroded. On section the upper lobe of the left lung was found to consist almost entirely of the mass of new growth above mentioned, which was degenerating in every part, and exhibited numerous cysts. One part at the anterior border was much harder than the rest, and was ossified or calcified to a slight extent. In the lower lobe there was one nodule the size of a Tangerine orange, soft and undergoing degeneration. The lower lobe of the right lung consisted in great part of new growth, which broke down on removal. Several smaller patches were scattered throughout the lung, most of them being soft, but one near the anterior border of the upper lobe was hard, and appeared to be ossified in about half its extent. The left leg had been amputated at the middle of the thigh. The stump was quite healed, and appeared to be some months old. Its end was swollen on the posterior aspect, and the swelling was very elastic and fluctuating. It was found to be a blood cyst. The bone was nicely rounded off at the end, and covered posteriorly by a thin layer of sarcomatous tissue. In the skin over the scalp were some half-dozen nodules of new growth, two of which had reached the scalp and penetrated it; one of them, close to the longitudinal sinus, had penetrated the bone to the dura mater, near which it was adherent. The brain was quite normal.

Remarks by Dr. POLLOCK.—The nature of the growth in the lung in this case was diagnosed very early. It was assumed that the disease was secondary, but it was difficult to determine the original source of mischief. Had the leg been removed for sarcomatous growth this would have been plain enough, but no evidence to that effect could be obtained. Either there must have been some commencing sarcoma in the femur when the thigh was amputated, or the new growth commenced in the stump subsequently. Nothing beyond palliative treatment was available, and the poor girl was kept fairly free from pain by the use of morphia hypodermically.

LEICESTER INFIRMARY.

ABDOMINAL SECTION FOR INTERNAL STRANGULATION; FORMATION OF ARTIFICIAL ANUS; FAILURE OF PLASTIC OPERATION; ENTERECTOMY; CURE; REMARKS.

(Under the care of Mr. C. J. BOND.)

A. H——, aged twenty-two, was admitted on Jan. 7th with a history of intestinal obstruction lasting five days, coming on suddenly with pain in the hypogastrium and vomiting. The abdomen on admission was considerably distended, and peristaltic waves could be detected at times in the distended coils, though no localised swelling or tumour could be felt. The vomiting was feculent, and the patient's general condition very critical. Abdominal section was performed the same afternoon, by an incision large enough to admit the hand in the linea alba. After some search and the drawing out of a long length of contracted bowel, a fibrous band was found passing across between two contiguous surfaces of mesentery, and forming a ring, through which a coil of intestine had passed and become strangled; this band was divided between two ligatures, thus partially relieving the strangulation; the distended bowel, however, was very firmly adherent to, and dragged strongly down by, this band, at one point, and in gently separating the two the gut gave way,

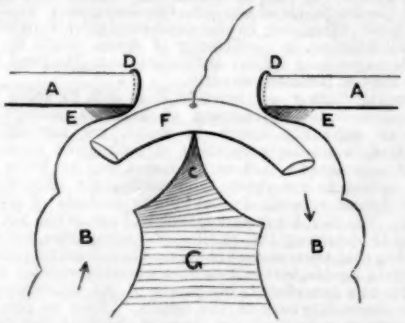


Diagram of relation of parts. A A, Abdominal walls. B B, Intestine. C, Spur. D D, Line of incision for plastic operation. E, Adhesions. F, Indiarubber tube. G, Mesentery.

some feculent fluid escaping into the peritoneum. As the gut seemed very distended and paralysed, and the opening difficult to close, the intestine, thoroughly freed, was drawn up to the upper angle of the abdominal incision; the opening in the bowel was then enlarged transversely across the gut, and a large quantity of feculent fluid and gas allowed to escape. The intestinal coils and peritoneum were then carefully sponged with warm boracic lotion, and the abdominal wound closed, except at the upper angle, where the mucous membrane was stitched round to the skin and a false anus formed.

The patient rapidly improved after the operation; there were no signs of peritonitis, and the abdominal distension soon subsided. It was soon found, however, as was suspected at the operation, that the opening was high up in the jejunum, and bile and semi-digested fluid food constantly poured from the opening over the abdominal walls and incision, excoriating the skin; yet it was remarkable that, with the exception of some ulceration round the stitches, the wound healed fairly well. The general wasting, however, was so rapid that on Jan. 15th, eight days after the operation, treatment by indiarubber tubes was commenced. An indiarubber tube (see F in figure), with a string attached to its centre, was pushed into the intestine either up or down, until it could be slipped entirely within the gut, and then allowed to remain in position; tubes of various lengths and sizes were tried, but the best result was obtained with a rather firm tube of four inches in length and a bore of nearly one inch, folded longitudinally while passed through the opening and then allowed to expand; in this way the bile

and food were more or less passed onwards, though at times the tubes became blocked or displaced. As it was evident, however, that the opening under this treatment would not close, and the patient suffered from loss of nourishment and excoriation, an attempt was made to close it by a sort of plastic operation on Feb. 5th. An incision was carried all round the opening at the junction of the skin and mucous membrane, and carried down between the intestinal and abdominal walls, as seen in the dotted lines (D D); the freed edges of bowels were then inverted and their opposing outer surfaces carefully sutured by numerous interrupted catgut stitches, and the opening in the intestine thus closed by a more or less linear row of sutures; the abdominal walls were then slightly freed, and slid together and closed over the intestine. As the adhesions (E E) between the intestine and peritoneum were not divided, the peritoneal cavity was not opened. The patient was fed by injections, and for two days the parts looked well, but on the second day a little bile oozed through, the stitches soon gave way, and in a few days the opening was as large as ever. The indiarubber tubes were again introduced for a fortnight in order to allow the opening to get into a healthy condition, and the patient, who had become very emaciated, to gain strength.

On February 16th, having previously ascertained by the finger, introduced through the opening, the direction of the two portions of intestine and the extent of the spur (which was found to have been considerably reduced by the pressure of the tubes), the abdomen was again opened in the mid line, just above the artificial anus, and the finger introduced. In this way the extent of the adhesions of intestine to the parietal peritoneum was ascertained and found to be considerable, involving from an inch and a half to two inches of the intestine around the opening: the bowel was then carefully detached from the abdominal wall all round at the junction of the skin and mucous membrane, and the whole coil of intestine, some eight inches, freed and drawn out of the wound, the opening in the bowel being carefully closed between the fingers. The intestinal wall was seen to be much thickened and rough on the surface from divided adhesions. The opening extended transversely across the gut for three-fourths of its circumference, but did not involve the mesenteric border; it was large enough to admit three fingers. The contiguous lengths of bowel, passing to and from the opening (B B), were adherent and more or less parallel in direction; these were freed as much as possible, so as to bring the intestinal channel into a line. The old margin of the opening was now cut away with scissors, and the suturing commenced. The muscular coat being retracted by the finger-nail, the mucous membrane only was first united by a continuous silk suture in its whole extent; the muscular and serous coats were then inverted and their opposing peritoneal surfaces united by interrupted fine silk ligatures passed on each side through the two outer coats and then drawn together, an ordinary straight round sewing-needle being found most convenient. In addition some sutures were passed beyond the limits of the actual opening in the gut, which was thus firmly closed by about twenty or thirty closely placed stitches. The peritoneum was then carefully sponged, the coil of intestines returned free into the cavity, and the abdominal incision closed except at the upper part, where a drainage-tube was left in over the bowel, so that if escape occurred the fluid might find its way out of the peritoneal cavity. This afterwards proved important.

The operation lasted two hours and three-quarters. The patient was allowed nothing but water and opium for five days. Nutrient enemata were then commenced, and peptonised beef-tea was given by the mouth on the tenth day after operation. A discharge of pus occurred through the track of the drainage-tube on the second day after the operation, and on the fourth a little bile appeared. This occurred at intervals until the tenth day, when one of the silk intestinal stitches came away. The discharge now rapidly ceased, and the abdominal wound closed a few days later. The patient now began to take food, and rapidly increased in weight. No sickness occurred, and the bowels were moved by injection on the twelfth day. The temperature was generally subnormal throughout.

Remarks by Mr. BOND.—There are not, I think, many recorded cases of artificial anus in the jejunum formed by the surgeon in the middle line, and then treated by abdominal section and suture of the bowel. Most of the published cases have been secondary to strangulated hernia and situated in the groin, and the majority are examples of fæcal fistula rather than artificial anus, in which the mucous membrane is continuous with the skin. No attempt was made in this case to close the opening in the bowel at the first operation, as it was thought that a free opening into the distended intestine would give the best chance of life. If called upon to treat a similar case, I should enlarge the opening in the intestine in the direction of the axis of the gut, and not across it, as, theoretically, that course, by keeping the intestine more in a line, should reduce the formation of the spur. The introduction of large-sized indiarubber tubes (suggested, I believe, by Mr. Banks) in cases such as this is a point of some importance. They appear to act in two ways: by their tendency to straighten after introduction they tend to prevent the excessive doubling of the intestine on itself opposite the opening, and by elastic pressure they reduce the projection of the inevitable spur; also by allowing the passage of bile and food into the intestine below they help to keep that in a normal condition and also sustain the patient. They seem to be especially applicable to cases of opening high up in the bowel, where the fæcal matter is very fluid and the bile flow excessive, and should, I think, be introduced and worn if possible for some time before any operation for closure of the opening is undertaken. The plastic operation, which was really a turning in of the intestinal coats without freeing them from their adhesions to the abdominal wall, and was somewhat like that reported by Dr. Duncan in THE LANCET of July 5th, 1873, failed because there was too much tension on the intestinal walls. The last operation was undertaken with some anxiety, as the mortality according to Mr. Treves is nearly 40 per cent., but the patient unless relieved must have eventually died a miserable death from starvation. A great deal here depends no doubt on the way in which the sutures are applied, and it seems especially important to stitch the gut beyond the mere limit of the opening in order to firmly close in the puckers or gutters which are left at the angles. Doubtless, too, the fact that it was not necessary to divide the mesentery and so interfere with the blood-supply tended to a favourable result. It is also important to get the bowel into as direct a line as possible, thus reducing the angle or bend in the continuity of the tube. I think the slight escape of bile after the operation, with the throwing off of the intestinal stitch, must have been due to the fact that at one point the intestinal coat was very thin, having been injured in detaching the strong adhesions binding it to the abdominal wall; one more stitch worked its way out without any escape of fluid some three weeks after the operation. I should feel greatly obliged if any reader of this case would direct my attention to any list or statistics of cases of a like kind.

Medical Societies.

CLINICAL SOCIETY OF LONDON.

Inherited Congenital Deformity of Hands and Feet.—Psoriasis, Pityriasis, and Rheumatism.—Symmetrical Gangrene following Varicella.—Intussusception produced by a Tumour.

AN ordinary meeting of this Society was held on the 1st inst., Dr. W. H. Broadbent, President, in the chair.

Mr. R. W. PARKER and Dr. H. B. ROBINSON read notes of a case of Inherited Congenital Deformity of the Hands and Feet, in which a plastic operation had been done on the feet, the patient being a child aged three years and a half. The two inner toes were coalesced into a single great toe, and the three outer toes were similarly united into a little toe; the coalescence extended in part into the metatarsal bones, and there was a wide and deep cleft between. The operation consisted in removing the skin from the contiguous parts of the cleft, and then uniting the edges after the toes had been pressed together. A more shapely and sightly foot was thus obtained. The child was one of several who suffered from a similar deformity, and her mother, herself affected, feeling the inconvenience of such a foot, had taken her to the hospital to see whether something could be done to remedy the defect. The authors showed a family tree, from which it could be seen that the deformity affected three generations. The first to suffer was the child's grandmother, and of thirty-six lineal descendants sixteen were malformed; the malformation was perpetuated through the

female branches of the family. It was singularly uniform in its manifestations, and was attributed originally to a fright. The patient and several members of her family were exhibited.

Sir DYCE DUCKWORTH read a case of Psoriasis associated with Rheumatism, which passed into Pityriasis Rubra (Dermatitis Exfoliativa). F. A——, aged twenty-four, married seventeen months, mother of a child which she suckled for four months, was admitted into St. Bartholomew's Hospital on Nov. 14th, 1885. She was suffering from well-marked and ordinary psoriasis, which had lasted five months, and from rheumatic pains in most of the joints. Ten and five years previously she had had attacks of psoriasis, lasting four or five months, each accompanied with rheumatic symptoms, as at present. She lived at Stratford, on the ground floor of a damp house. The joint pains preceded the outbreak of psoriasis. When a child she had rheumatic fever. There was no known family history of rheumatic fever. She was a fairly well-nourished woman of slender build, complexion pallid, hair light-brown. The heart's apex was displaced outwards, and a systolic apex murmur was audible. Nothing was found amiss with any other viscera. Urine contained a trace of albumen. The whole body was covered irregularly with patches of scaly eruption, the erythematous areas around them being very wide. There was less of the rash on the face and neck, most on the abdomen. There was pyrexia, temperature varying from 100° to 103·8° during her stay in hospital, with nightly rises. The digestive system was not much disturbed. Urine acid; sp. gr. 1023; it contained very often a trace of albumen, and sometimes abundant urates. Catamenia regular since the birth of her child. At the time of admission to hospital the psoriasis was beginning to pass into a general desquamative dermatitis, and rheumatic symptoms were increasing in severity. Milk diet was ordered. To have an alkaline bath on alternate nights, and olive oil to be rubbed in all over the body. Fowler's solution in four-minim doses in an alkaline tonic mixture was given thrice daily. The appetite increased under this treatment. The pain grew worse, and the temperature kept up. Effusion occurred in some joints. Sodium salicylate was next given to the extent of a drachm daily. Soap-and-spirit lotion was used to remove the hard scales from the scalp, and linimentum calcis to the body generally. No improvement followed from the salicylate treatment, and the temperature was unaffected by it. The skin was now universally affected, and cast off handfuls of scales. The rheumatism was severe, and the patient became very ill. She begged for meat and for better diet than was thought fit for her. The salicylate was increased to eighty grains each day, and sitz baths given instead of alkaline ones. Joints of legs and arms very painful. Hypnotics required at night. In the third week after admission, the plans of treatment hitherto having been unavailing, a change was made, the quino-alkaline draught being given, and oleate of zinc ointment applied. Mashed potato and custard pudding added to diet. The skin improved somewhat after this, but still desquamated freely. Temperature still pyrexial. Joints improved. No fresh cardiac troubles came on, but "hæmic" basic murmurs developed. Within ten days the morning temperature began to reach normal, but the evening rise was nearly 102° on several occasions. On Dec. 11th arseniate of sodium in fifteen-minim doses was begun, and full meat diet was given. In a few days there was very decided improvement in respect of the skin and joints, but the temperature continued high, reaching its highest point, 103·8°, three nights after beginning this treatment. Antipyrin was given in full doses without any effect on this. The pulse was 138. Appetite very good. The arsenic was increased gradually up to ten minims at each dose. At the end of December patient's skin was getting clear, joints improving, and she got out of bed daily. Starch and zinc paste was found useful for the skin at this time. In January the joints were painless, but ached when fully stretched. The wrists and fingers were deformed, joints knotty, and fingers turned out to ulnar side of arm. When the patient left the hospital on Feb. 12th the skin was perfectly smooth and natural. The joints of the wrists and hands were crippled and deformed. The case illustrated the transformation of psoriasis into diffuse exfoliative dermatitis, an occurrence which has been previously noted. The relation of the rheumatic disease, if it was rheumatic, was of interest. Psoriasis is not uncommon in persons rheumatically disposed, especially in subjects of rheumatoid arthritis. The powerlessness for good of the salicylate treatment was noteworthy. The same has been noted of this drug in chronic rheumatic arthritis and so-called gonorrhœal rheumatism. The benefit of full arsenical medication was most marked, and no relief was afforded by treatment which commonly proves useful in ordinary rheumatism. The author had not found dermatitis exfoliativa rebellious to treatment by alkaline tonics, baths, and oily inunctions.—Dr. RADCLIFFE CROCKER said that his experience also testified to the possible connexion of rheumatism with a previous dermatitis. He thought that any form of dermatitis might be the antecedent—e.g., excessive inunction of chrysarobin had been recorded as preceding pityriasis. A case was narrated of nine attacks of psoriasis. The ninth attack was followed by pityriasis; each subsequent attack was also followed by pityriasis, and the patient died after the fourth attack. There was a mitral murmur, but no definite history of rheumatism. A case of a woman suffering from lichen ruber was also related. In this there was also rheumatism with mitral disease. Hypodermic injections of arsenic were followed by improvement. The rheumatism became worse; pericarditis and iritis developed. The lichen ruber element shelled off in large plaques, and pityriasis developed. Salicylate of soda and a low regimen effected no good, but the administration of quinine and good food was followed by improvement. Nothing but calamine liniment was used for the skin. The heart murmurs alone remained. The lichen ruber returned in very slight degree. Psoriasis was the most common antecedent of pityriasis rubra when this did not occur as the only disease.—Dr. T. BARLOW had also observed the triple association of psoriasis, pityriasis, and rheumatism. The case of a gentleman was related. A mitral murmur with hypertrophy of the left ventricle existed. During the last two years the type of the skin affection had altered. The patient developed an acute attack twice a year. At the beginning of one of these Dr. Barlow first saw him. There was some brawny induration of the true skin as well as the psoriasic condition. The attack lasted one month, and was attended with fever and much general illness. Anorexia was a marked symptom. The skin symptom changed, and a bright-red, swollen skin developed, with lymphatic glandular enlargements. After complete exfoliation of the cuticle the skin was left soft and supple, like that of a new-born child. He had watched five or six attacks in the same gentleman. He agreed that when once the skin lesion had taken on this type it would continue. During the attack certain conditions about the joints might have been regarded as rheumatic, but there was no true effusion into the synovial cavities.

Mr. EDWARD BELLAMY read a case of Symmetrical Gangrene (Raynaud's Disease) following Varicella in a child aged four, causing death on the fourth day. The patient was admitted under his care on Jan. 19th, 1887. On admission, she had spots of varicelli over her body and face, which were first noticed on the 16th. On the evening of the 19th, at 7 o'clock, the child complained of her right leg being sore, and a small circular black patch about as large as half a crown was seen below the inner side of the knee; by 10 o'clock this patch had extended down the leg to the foot, when she was brought at once to the hospital. On arrival, a similar patch had made its appearance just above the left ankle, which rapidly extended up to the knee. The patient was unable to stand, and complained of great pain in both legs, which increased on pressure. The second, third, and fourth toes of the right leg were exempt from discolouration, and the fifth but slightly mottled. Shortly after admission, an oblong patch about 2 in. by 2 in. appeared on the outside of the left thigh. On the 21st a small patch appeared on the outer side of the right forearm, and slight discolouration on either side of the spine, on a level with the crest of the ilium, and in the afternoon of the same day in either cheek and conchæ of both ears. The complexion was very white, face sallow, expression dull and heavy; tongue dry and brown, but reddish at tip. Pulse 150, weak; temperature 100°. Heart sounds normal; breathing normal; both legs cold and insensitive; pulsation in left femoral fairly distinct, but could not be felt in right. Urine: sp. gr. 1023; clear and pale; no trace of albumen and no hæmoglobin could be detected. In the evening of the 21st she was suddenly seized with stertor and died. A full account of the post-mortem accompanied the paper. Perhaps the most interesting points are as follows:—There was an enormous opening in the foramen ovale, bounded below by a valve a quarter of an inch deep, having a free crescentic margin. Dissection of the right

leg: The fat and skin and gangrenous parts were dark-purple from hæmorrhagic infiltration, this appearance fading away at the apex of Scarpa's space. The obvious gangrene ceased just above the inner condyle, the skin above being apparently normal. The leg, which appeared quite gangrenous, was of a uniformly purple colour. There were some petechiæ or small hæmorrhages in the intermuscular plane, the muscles themselves being very strongly contracted in rigor mortis, and appearing almost healthy. Here and there they showed small hæmorrhages; this was especially the case in the deeper fibres of the soleus. The femoral glands were a good deal enlarged, and either hæmorrhagic or containing a quantity of blood pigment. The saphena vein contained only post-mortem clot.—Mr. J. H. MORGAN said that the most remarkable point was the circumstance that the gangrenous condition extended higher on the inner side than on the outer. The gangrene did not spread much whilst the child was in the hospital. The great toes remained perfectly normal. At the necropsy the rigor mortis was well marked. The hæmorrhages were apparently confined to the cutaneous structures. The vessels were found to be healthy.—Mr. COODE ADAMS suggested that the case might have been one of hæmorrhagic small-pox; he inquired as to the condition of the body temperature.—Dr. LONGHURST considered that the case was due to blood poisoning, and he thought that it might have been small-pox.—Dr. HERRINGHAM regarded the case as most likely one of varicella gangrenosa, a condition which was not so very uncommon.—Dr. BENHAM asked whether the child had been exposed to cold, for the appearances were something like those of frost-bite.—Dr. RADCLIFFE CROCKER asked how the gangrenous area developed, whether in connexion with the varicellar vesicles or separately. He said that the condition was not allied to ordinary cases of varicella gangrenosa. Were the patches on the cheeks or arms pure hæmorrhages or gangrenes?—Dr. T. BARLOW said that all the cases of varicella gangrenosa he had seen began in the varicellar bullæ; it was a multiple gangrene quite different from the case now described. Again, there was no resemblance to symmetrical gangrene or Raynaud's disease. He classed Mr. Bellamy's case along with those of symmetrical gangrene following the acute specific fevers. He had recently seen one case, not so extensive, of symmetrical gangrene after measles. In these cases a dissolutio sanguinis appeared first to occur and to be associated with hæmorrhages as the initial phenomenon of the gangrene. In Mr. Bellamy's case, besides the hæmorrhages in the skin, there were extravasations in the pleuræ and muscles. In other cases, also, he had seen the diffuse hæmorrhages occurring in various organs. The tips of the ears was a favourite site. He could not but think, in opposition to Mr. Morgan, that the heart condition—for the foramen ovale was large enough to admit the thumb—may have had some share in the causation of the hæmorrhages. In one case huge hæmorrhages developed around the measles papules in a child who was the subject of congenital heart disease.—Sir DYCE DUCKWORTH believed that congenital heart disease was a serious complication of the exanthemata. He would not have thought of varicella gangrenosa in connexion with the case narrated.—Dr. BROADBENT agreed with the views of Dr. Barlow. In a case recently seen of typhoid fever, both ears became gangrenous, but he could not say whether preceded by a hæmorrhage; one or two fingers of each hand were also affected. He said it had no kind of resemblance to hæmorrhagic small-pox, of which he had seen some thirty cases.—Mr. BELLAMY briefly replied.

Mr. ARBUTHNOT LANE described a case of Intussusception produced by the presence of a Tumour growing from the Mucous Membrane of the Transverse Colon. After an attack of diarrhœa, in a chronic case of hip-joint disease in a child aged eight, a tumour as large as a walnut was found projecting from the anus. It was much congested; blood oozed from its surface. The nurse in attendance supposed it to be a prolapse of the mucous membrane of the rectum, and attempted to return it within the anus, but was unsuccessful. On examination, the tumour appeared to have a very long pedicle, which gradually increased in thickness, extending beyond the reach of the finger. As there were no symptoms of strangulation, and as the length of the pedicle was doubtful, he returned the tumour within the rectum. It soon passed out of reach. On the following day the tumour could be felt in the middle line, between the umbilicus and symphysis, between the finger in the rectum and the hand on the surface of the abdomen. Some days after, during another attack of diarrhœa, the tumour was again extruded from the anus. On this occasion it was found that the tumour was sessile, and that it was attached to the very congested mucous membrane by a constricted neck, the prolapse of gut being abundant and lax, so that on the first occasion the whole of the thin apparent pedicle must have been formed by mucous membrane and the intestine itself. On the removal of the tumour, the prolapsed gut was readily replaced above the pelvic brim by the finger, and subsequent examination revealed no signs of an intussusception. No tumour could be felt in the abdomen on either occasion in which the growth projected from the anus.—Mr. F. TREVES said that the mildest cases of intussusception were often those associated with large polypi in the colon. Polypi were present in 5 per cent. of the cases of intussusception. The first symptom of such intussusception was often the appearance of the tumour at the anus. He also drew attention to the causational influence of a mass of epithelioma in the wall of the bowel as leading to the formation of an intussusception.—Mr. A. E. BARKER said that the number of cases in which epithelioma had been the cause of intussusception was not great. He briefly related a case of epithelioma of the sigmoid flexure, in which the new growth extended two-thirds round the circumference of the bowel, and led to intussusception. The pedicle of the tumour was formed of the coats of the bowel itself.—Mr. BRYANT thought that intussusceptions caused by tumours were not very rare, though in the adult they were not recognised sufficiently. He believed a fair proportion of the cases in adults were due to tumours. He had recently operated on a lady aged eighty-four for intussusception. There was a tympanitic abdomen, and a long history of bowel trouble, followed by acute obstruction. Examination per rectum detected a growth in the bowel, which occupied the centre of the canal itself. The growth was as large as an egg, and of coarse villous nature. Its removal was easily effected, and the bowel then soon ascended above the brim of the pelvis, giving the palpating hand a curious sensation. The lady soon became well, and walked about in perfect health. The fact that the growth could be felt was the interesting point in Mr. Lane's case.

The following living specimens were exhibited:—Dr. Drewitt: A Case of Lupus, treated partly by Salicylic Paste, partly by Scraping. Mr. Parker and Dr. Robinson: Inherited Congenital Deformity of the Hands and Feet; Plastic Operation on the Feet.—Mr. Walsh showed for Mr. R. W. Parker an Abdominal Tumour (? renal sarcoma) in an infant aged two years.

MEDICAL SOCIETY OF LONDON.

Ulcerative Endocarditis.—Alleged Dangers of Starch-containing Foods during the period of Infancy.

AN ordinary meeting of this Society was held on Monday last, Dr. J. Hughlings Jackson, F.R.S., President, in the chair.

Sir DYCE DUCKWORTH read a case of Ulcerative Endocarditis that simulated typhoid fever and acute tuberculosis. It occurred in a girl aged twenty, in whom there was no history of rheumatic fever, but some of the joints had been slightly swollen. A systolic murmur was detected in the mitral area after the patient had been admitted into hospital. Cough, with bronchitis, wasting, and loss of power, with other symptoms of the typhoid state, were present, but there were no spots or diarrhœa and no enlargement of the spleen below the ribs. The necropsy revealed no tubercles or splenic infarctions, but the mitral valves were much diseased and fungating.—Dr. SANSOM inquired whether it was possible for the pneumonia to have preceded the malignant endocarditis. Dr. Osler, and a pupil of M. Cornil's, had drawn attention to the relationship between pneumonia and ulcerative endocarditis. He referred to the case recorded in the Medical Society's Transactions. Variability of murmurs was an important sign of this form of severe endocarditis. The case improved immensely under the use of half-drachm doses of sulpho-carbolate of sodium. She subsequently died, and the necropsy seemed to show that a fresh eruptive process had supervened whilst the original disease had subsided. The progress of the temperature afforded no aid in diagnosis.—Dr. HUGHLINGS JACKSON said that this form of endocarditis was met with in some cases of epidemic meningitis. Absence of knee-jerks would point to meningitis in a case of doubt between meningitis

and typhoid fever.—Dr. HENRY WHITE dwelt on the difficulty of diagnosis.—Sir DYCE DUCKWORTH said that the antiseptic treatment had proved valueless in his hands. He had seen the knee-jerks disappear at the close of cases of typhoid fever.

Mr. R. W. PARKER read a paper on the alleged Dangers of Starch-containing Foods during the period of Infancy. As the result of many years' observation at the East London Hospital for Children and in private practice, he stated his belief that the dangers of starch foods were greatly exaggerated. He was quite aware of the mortality among artificially-fed children, but he attributed this, as well as the marasmic condition of many that did not actually die, to congenital debility, the result of debilitating influences of various kinds acting on the parents before the birth of the children. An analysis of cases had convinced him that, in a large proportion of cases, artificial food was only commenced because the children were weak and puny, and not thriving on the breast milk. Mr. Parker did not advocate artificial feeding, nevertheless, but the contrary. He rather implied a belief that artificial feeding was on the increase, and that it had the consent of the medical profession: many mothers left off suckling, he argued, without sufficiently good grounds, so widespread was the doctrine that if all the starch had been converted into dextrose, and so rendered digestible, artificial feeding might safely be commenced. This was quite an error, and, moreover, it was desirable that mothers should nurse their children, as nursing mothers were less liable to conceive, and thus there was a longer interval between the children. Too rapid child-bearing was one result of not suckling; it was very debilitating, and one of the most potent sources of the marasmus and weakliness so largely present among the children of the poorer classes. Besides this, a child that was deprived of the mother's milk was probably deprived of the mother's care, not less important than the milk for a weakly child. Thus, Mr. Parker argued, there were many factors to be taken into consideration in estimating the causes of marasmus and its consequences. He thought that too much stress had hitherto been laid on the effects of artificial feeding, and more especially on the starch constituents of this food, and that too little stress was laid on the congenital debility of children born under adverse circumstances.—Dr. GIBBONS did not agree with the conclusions of Mr. Parker on the innocuous influence of starch in infancy. Imitation of the mother's milk was the object to be aimed at in artificial feeding.—Dr. ALLCHIN admitted that defective hygiene was a most important consideration, but he did not agree that starch was not injurious.—Dr. DE HAVILLAND HALL said that puppies had developed rickets as the result of being fed on biscuits.—Mr. R. W. PARKER, in reply, said that the experimental observations on animals were valueless *qud* the point under discussion, because of the bad hygienic circumstances under which the animals were kept.

Dr. WHIPHAM read a paper and showed some drawings of cases of so-called Glossitis Migrans, Wandering Rash, Lichenoid Eruption. A case in a domestic servant suffering from mitral disease was narrated. The second case occurred in a young man who suffered from typhoid fever. The sinuous margin was composed of vast accumulations of epithelial cells, taking the shape of a Chinese pagoda. The tissue of the mucosa showed evidence of inflammatory growth. Dark opaque masses overlaid the epithelium in places, and were probably composed of colonies of micrococci. He supported Lemonnier's view, that the lesion was a superficial inflammation—a glossitis superficialis migrans.

EPIDEMIOLOGICAL SOCIETY OF LONDON.

AT a meeting held at 11, Chandos-street, Cavendish-square, on Wednesday, March 9th, Inspector-General Lawson in the chair,

Dr. STEPHEN MACKENZIE read for Dr. Wykeham Myers a paper entitled "Further Observations on Filaria Sanguinis Hominis in South Formosa," of which the following is an abstract. The author stated that further and extensive careful examination had failed to discover in South Formosa a mosquito like the Amoy filaria-nurturing variety, either in species or capacity for nursing the blood embryo. He then proceeded to describe the varieties of mosquitos he had been able to discover in South Formosa, appending sketches and careful measurements of the tiger, brown, and ejecting mosquitos, with sketches and measurements of the Amoy filaria-nurturing mosquito, and reiterated his opinion that the absence of filarial diseases in South Formosa is due to the absence of the species of mosquito which is capable of acting as the intermediate host to this parasite. He next discussed the ultimate destination of the filaria embryos found in the blood, and the following are the conclusions at which he arrived:—1. Accepting that parturition in the parent worm is continuous and exceedingly prolific, then removal of those filariæ which have had their chance of mosquito withdrawal, but have escaped detection is necessary, in view of the swarm which will inevitably enter the blood from the lymphatic system at the next period of its suitability for their reception. 2. The marked difference between the condition of that fluid when favourable for filarial development and its state when hostile to their existence seems due either to the *presence* of an excessive amount of carbonic acid, *or* the *absence* of a sufficient quantity of free oxygen. Inasmuch as the former necessarily involves the latter, and experiments seem to show (*a*) that direct contact of carbonic acid in presence of excess of oxygen is not, immediately at least, injurious, but that (*b*) exclusion of oxygen, either by surrounding the blood with carbonic acid or placing it in a condition opposed to access of the former gas, brings about the destruction of the parasites, and that (*c*) the behaviour of the filarial embryo, both in the human blood and when contained in the mosquito, seems strongly to indicate a desire for this gas, it may be assumed that probably its presence is essential to further development, and its withdrawal or diminution in quantity conducive to death. The author therefore suggested the following as the course pursued by the embryo from birth until its absorption by the mosquito. For a period of not less than twelve hours, and probably in no case exceeding twenty-four, the filariæ remain in the lymphatic system; at some time during this period, urged by the favourable conditions in the hæmic circulation, it exhibits for the first time a selective ability, and enters the latter. It will be observed that, supposing twelve hours to be the least time apportioned for intra-lymphatic existence, and that the filariæ disappear from the blood at 7 A.M., appearing again at 7 P.M., all those born between these hours will be ready for entrance into the blood at various times during the following night, but those born during the night itself would only be fitted for intra-vascular existence at some time during the day. This infers a longer or shorter delay, according to the hour of birth, and may account for the fact of embryos being occasionally seen in the blood during daylight, as was the case with all Manson's early finds, got as they were during that period. It is possibly, however, more or less the result of accident, due either to what we may call impulsive injudiciousness on the part of a few, or untoward subjection to the irresistible forces present at or near the termination of the thoracic duct, within the scope of which they have been tempted to approach too closely. As to the facility for postponing their advent shown by those embryos born during the night, we have actual proof of such capability on the part of the parasite, in those geographical results previously described. The term "postponement" is only used in a figurative sense. Although, as before pointed out, the embryos are wanting in locomotory power at this stage, still there can be no doubt of their ability to resist moderate onward pressure, either by actual adhesion or by the opposition of forces resultant from the contraction and extensions in the body; converging as these do towards a central point, they are able to control within limits the duration of their stay in the sluggish lymph current. When the proper time arrives, however, they yield to the pressure, and their passage to the now attractive blood is brought about. In the mosquito, where migration has to be effected in a stagnant medium, inherent locomotory powers are required, so at or about the end of another twenty-four hours the embryo temporarily becomes possessed of this ability, moving about freely. Arriving at the thorax, and beginning at a stage where quiescence is more comfortable to its necessities, the parasite seems again to enter on a sort of chrysalis state, or, in other words, to become passive. The last section of the paper dealt with the pathology and treatment of elephantiasis or lymph discharges. The author discussed in great detail the different views put forward by various writers. Agreeing with Manson as to the filarial origin of these diseases in the majority of instances, he differed from him as to the mechanism by which the filariæ operated. He rejected abortion of the parent worm, and

was inclined to attribute the overgrowth of tissues, discharges of lymph or chyle, and febrile manifestations to overgrowth of cells due to increased plasmic flow (as distinguished from obstruction), due in the first instance to the presence of filaria sanguinis hominis (or in non-filarial cases to an ulcer, eruption, &c.), or some other excitation, and which, when once set up, might persist after the original exciting cause had ceased to operate. With regard to treatment, he advocated, when practicable, removal from a filarially infected region, but where this could not be accomplished filtering and boiling all water drunk, and for local treatment pressure both on the affected part by indiarubber bandages and over the arteries supplying the region, in preference to deligation of arteries. In connexion with the paper, Dr. Stephen Mackenzie exhibited a patient suffering from chyluria contracted in India, and demonstrated the living filariæ in the blood.—In the discussion which followed, Inspector-General Lawson, Drs. Thorne, Mortimer Granville, and Willoughby, and Mr. Smyth took part.

ACADEMY OF MEDICINE IN IRELAND.

The Marsupial Heart.—Absence of the Internal Iliac Artery.

A MEETING of the Sub-section of Anatomy and Physiology was held on Feb. 10th.

Dr. CUNNINGHAM exhibited the Heart of a Kangaroo which he had recently successfully injected. He stated that Owen was of opinion that the marsupial heart was distinguished by (1) the absence of the fossa ovalis, (2) the presence of a cleft in the auricular appendix of the right side, and (3) the absence of a separate orifice in the right auricle for the coronary vein. The absence of the fossa ovalis was also associated with a total absence of the ductus arteriosus, the Eustachian valve, and other vestigial remains of embryonic life, such as the urachus, hypogastric arteries, round ligament of the liver, &c., and was accounted for by the short period which the embryo spent within the uterus. The bifurcation of the auricular appendix was well seen in the specimen exhibited, and it was present in a marked form in the phalangers, but was absent in the thylacine and dasyure. With regard to the third point of distinction mentioned by Owen, Dr. Cunningham stated that he had been able to make out in the *Challenger* marsupials a separate opening of the great cardiac vein in the right auricle, but this was situated at the upper part of the cavity close to the opening of the superior vena cava.

Dr. LEDWICH read notes of the dissection of a male subject, in which the Internal Iliac Artery was absent on the left side. On the right side the structures were normal. The abdominal aorta bifurcated at the lower border of the third lumbar vertebra to form the two common iliac arteries; the right divided normally into the internal and external iliacs, but the left, instead of dividing, continued as a single vessel in its whole course to the femoral artery. This single iliac artery passed obliquely downwards and outwards over the psoas muscle for a distance of three inches, and then, turning somewhat sharply inwards and then downwards over the ilio-pectineal line, entered the pelvic cavity. This intra-pelvic portion of the vessel formed a long loop reaching to a point about half an inch below the highest part of the great sciatic notch. The artery then, ascending, recrossed the ilio-pectineal line, and, turning downwards over the horizontal ramus of the pubes, terminated in the femoral artery. This vessel may therefore be considered as divided into three portions—1, the oblique portion; 2, the looped portion, which may be subdivided into (*a*) the descending limb, (*b*) the transverse part, and (*c*) the ascending limb; 3, the horizontal or pubic portion. The diameter of the vessel was greatest at the transverse part of its loop, where it measured seven-sixteenths of an inch; and least at the termination of its pubic portion, where it measured five-sixteenths of an inch. Its total length was nine inches. The first sacral nerve passed through the loop of the artery from without inwards, and tightly held down the vessel; the nerve then, winding round the inner side of the ascending limb of the loop, joined with the lumbo-sacral cord. The branches which arose from each portion of the artery were as follows:—From the oblique portion: (1) A posterior ilio-lumbar artery of some size, which resembled in its course and mode of termination the lumbar branch of a normal ilio-lumbar artery. (2) Two or three small branches to the psoas muscle, peritoneum, &c. From the descending limb of loop: (1) The internal pudic artery arose opposite the first sacral foramen. Its intra-pelvic portion was exceedingly long, measuring from its origin to the great sciatic notch fully five inches, and in diameter it measured slightly over an eighth of an inch. From its origin the pudic artery curved inwards and downwards to the middle of the anterior surface of the bodies of the third and fourth bones of the sacrum, where it gave off the middle sacral artery. It then curved outwards and downwards, between the second and third sacral nerves, and in front of the pyriformis muscle, to the great sciatic notch, through which it passed below the muscle, and followed thenceforth the route and termination of a normal pudic vessel. The middle sacral artery was very small, and arose from the internal pudic over the fourth bone of the sacrum. It passed downwards in the middle line for a distance of an inch and a half, and terminated normally on the coccyx. The internal pudic also gave off, just outside the sciatic notch, a large muscular branch to the gluteal muscles. From the transverse part of loop: (1) The lateral sacral artery arose just above the second sacral foramen. It was a short small vessel, and sent branches into the second and third sacral foramina. (2) The gluteal artery was a short thick trunk, which arose from the junction of the transverse and ascending portion of the loop. It passed almost directly outwards through the great sciatic notch above the pyriformis muscle and terminated in the usual manner. From the ascending limb of loop: (1) The sciatic artery arose three-quarters of an inch above the transverse portion, and, passing downwards internal to the first sacral and the lumbo-sacral nerves, left the pelvis through the great sciatic notch below the pyriformis muscle, and terminated in the usual way; (2) an anterior ilio-lumbar artery (much smaller than the posterior), which terminated like the iliac branch of a normal ilio-lumbar artery. No other branches could be discovered arising from this abnormal iliac artery. The obturator and deep epigastric arteries arose by a common trunk from the femoral, about one inch below Poupart's ligament.

Dr. BROOKS communicated the result of his investigations into varieties in the Innervation of the Umbricals of the Hand and Foot, with some observations on the perforating flexors.

Dr. CUNNINGHAM exhibited (1) four Chinese Plates of Human Anatomy which had been presented to him by Dr. Irwin of Tientsin; and (2) casts of Deformed Feet of Chinese Women which had been presented to him by Professor Welcker of Halle. He explained from the cast that the foot was bent into an exaggerated arch so that the os calcis was brought to lie immediately below the astragalus; but, though they distorted the foot, the Chinese seemed to have an appreciation of the importance of the great toe, which was preserved for locomotion.—Dr. FRAZER said he had a book with a series of plates published two hundred years ago, illustrating the Chinese system of anatomy, which had been followed for upwards of a thousand years.—Mr. THOMSON remarked that they had advanced in surgery of late years. They had had "Erichsen's Surgery" translated into Chinese.—Dr. FRAZER: And also a Dublin book—"Churchill's Midwifery."

CAMBRIDGE MEDICAL SOCIETY.

A MEETING of this Society was held on Feb. 4th, when the President (Dr. Bradbury) gave an address on resigning the chair, to which Mr. Cleaver was afterwards elected. The chair was taken by the Vice-President, Mr. Stear, M.R.C.S., and the following communications were made:—

Quinsy.—Dr. EASBY (Peterborough) read a paper on quinsy and its treatment. After speaking of the old method of antimonials, free purgation, complicated gargles, leeches and blisters, Dr. Easby advised the use of aconite given after Dr. Ringer's method, or from ten to fifteen grains of salicylic acid or salicylate of soda given every two hours, which had invariably afforded speedy relief. Gargles were strongly condemned as both useless and cruel to the patient. As a local application, a powder consisting of equal parts of tannin and iodoform puffed on to the swollen tonsils he had found give great relief to the pain.—Dr. LATHAM agreed that gargles were useless, and advised the use of the spray, chlorine water

or some antiseptic. It was especially useful for children. He strongly endorsed Dr. Easby's remarks on giving salicylic acid and salicylate of soda in the early stage, more especially if there was any association of rheumatic symptoms.

Note on Stellwag's Symptom.—Mr. WHERRY showed a patient, a married woman, aged thirty-two, who came to Addenbrooke's Hospital with marked retraction of the left upper eyelid (Stellwag's sign). There was no proptosis or goitre, but some throbbing of the carotids and palpitations; no cardiac bruit. She blushed and perspired very easily, and suffered a good deal from indigestion and sleeplessness. The retraction of the lid was extremely well seen when the eyes looked downwards. There was no want of consensual downward movement of the eyelid (Graefe's sign). The pupils were equal and active, V = ⅔ in both; fundus normal; no pulsation in the retinal vessels; complete power of closing the eyelid; cornea and conjunctiva sensitive. The patient has been married thirteen years; had no miscarriage; has one child, now six years old; has had no illness of late; menstruation quite regular, rather scanty; occasional leucorrhœa. Although there was no exophthalmos or goitre, Mr. Wherry thought this was probably a case of Graves' disease. This patient had first noticed something wrong with her eye about a year ago. She had been under observation for the last six months, and had improved under treatment by bromide draughts at night and small doses of belladonna twice daily. There was little change, however, in the eyelid symptom, which came on rather suddenly and continued to the present. Mr. Wherry wished to draw attention to this symptom without suggesting any theory as to the pathology of Graves' disease, because the opinion has been expressed by Graefe that cases are not rare in which the only symptoms of this affection in women are rapid action of the heart without hypertrophy or valvular disease and defective mobility of the lid; the latter is, at any rate, an extremely important symptom to take note of—important in the diagnosis, treatment, and pathology of Graves' disease.

Intra-uterine Amputation of Forearm.—Mr. STREET said that A. B——, aged twenty-two, a healthy young woman, was first seen by him when suffering from inflammation of the left olecranon bursa. From an inch below the elbow the limb is wanting, and the stump presents all the appearances of an intra-uterine amputation. On inquiry he found that she was born with this deformity; the stump was quite healed at birth, and no evidence of any remains was to be found. The cicatrix is very small, being only three-quarters of an inch long, and the skin is very little puckered around it; it is not adherent to the deeper parts. The bones of the forearm can both be distinctly felt, and the olecranon seems almost equal in size to the right one. The humerus and muscles of the left arm are no smaller than can be accounted for by not being so much used as the right arm. There is no history of syphilis in the mother nor was any accident remembered during gestation.

Immature (Senile) Cataract.—Mr. DEIGHTON read a short paper in which he discussed the conditions which rendered it advisable to operate in cases of immature (senile) cataract; he also read notes of a case in which he had operated, the patient obtaining V = ⅔ and 1 Jaeger.

Reviews and Notices of Books.

A Text-book of Pathological Anatomy and Pathogenesis. By ERNST ZIEGLER. Translated and Edited by DONALD MACALISTER, M.A., M.D. Part II.: Special Pathological Anatomy. Sections IX. to XII. London: Macmillan and Co. 1886.

WITH this, the third, instalment of by far the best appreciated pathological text-book of our day, Dr. MacAlister has completed the task to which he applied himself. Of the remaining sections of the original work, some are not from Professor Ziegler's pen, and Dr. MacAlister has decided not to translate them. These sections, it may be said, comprise the diseases of the organs of special sense, of the osseous and muscular systems, and of the organs of generation. Some at least of these subjects would have been welcomed by the English reader, who may regret the decision to exclude them. Our literature is not so rich in detailed exposition of the pathology of these organs and tissues but that we could gladly receive them, and we may express a hope that the translator, whose duty has been so admirably performed in the portions he has published, may yet reconsider his resolve, and add a fourth volume, which will complete the work.

The volume before us deals with the important subjects of diseases of the urinary, respiratory, and nervous systems. They have been carefully edited, for the bibliographical references, which form so useful and notable a feature, are thoroughly up to date, rendering the work one of great value to the pathological investigator. The text is remarkable for the lucidity and scientific treatment of subjects which have been more or less obscured by different writers, who have dealt with them from too narrow a standpoint. Take for example the subject of renal disease, which since the time of Bright has been a field of so much contention. A sharp distinction is drawn between the simple "contracted" kidney and "renal cirrhosis." The former is demonstrated to depend upon arterial changes, a condition of atrophy due to arterio-sclerosis. It is the form which occurs in chronic lead poisoning, and it is allied to senile atrophy. We have here a recognition of the views promulgated by Sir W. Gull and Dr. Sutton, but, as Professor Ziegler points out, this is not the sole form of granular kidney known. Contraction of the organ may be an ultimate stage of chronic parenchymatous nephritis, or it may be the outcome of a true cirrhosis or a "chronic indurative nephritis," in which fibrous over-growth is the predominant feature. This teaching seems to harmonise the divergent doctrines on the nature of chronic Bright's disease in a more satisfactory manner than the attempt to create a unity in nature and origin between diverse forms of disease, which have nothing in common but the feature of wasting of secreting structure. The various types of nephritis — hæmatogenous nephritis is the term here employed—are differentiated into three groups: 1st, acute; 2nd, chronic parenchymatous; and 3rd, chronic indurative. Under the first head are included: 1, acute glomerular nephritis, such as is characteristic of scarlatina; 2, acute diffuse nephritis or acute inflammatory œdema; 3, acute disseminated interstitial nephritis, which is regarded as the commonest form of acute renal inflammation; and, 4, disseminated suppurative nephritis, which in this country we know best under the unfortunate name of "surgical kidney," but which includes also all metastatic and embolic abscesses. Of chronic parenchymatous inflammation, characterised by intertubular exudation as well as alteration in the epithelia, Professor Ziegler distinguishes according to their stage the following: 1, inflamed fatty kidney; 2, large mottled kidney; 3, large white kidney; 4, chronic hæmorrhagic nephritis; 5, chronic glomerular nephritis—a subdivision which is justified on anatomical if not on clinical grounds. Of the chronic indurative form, or renal cirrhosis, we have spoken above. There may be a tendency here to undue refinement, but it cannot be denied that the more the histology of kidney disease is studied, the stronger will be the conviction that there do exist varying types of disease, essentially distinct, included under the somewhat lax and unscientific heads of Bright's disease—acute and chronic. We may trace the same grasp of details and power of analysis which are so characteristic of Professor Ziegler in his chapter on diseases of the lungs, and especially in that on tubercular disease; but it would not be possible to do full justice to his treatment of this important subject without free quotation and extended notice. Suffice it to say that the pages devoted to this subject will well repay careful study; whilst one cannot fail to note the importance assigned to aspiration of tuberculous matter in the extension of the disease, which also spreads by peripheral extension, by tuberculous lymphangitis, and by intravenous tubercle. The section on the nervous system opens with a chapter upon the structure of the

brain—more detailed than usual in a pathological text-book, yet of considerable importance for the interpretation of morbid lesions. The chapters on softening, and on sclerosis—which is regarded in the main as degenerative and atrophic rather than inflammatory,—and the further chapters on inflammatory disorders of the brain and cord and their membranes, are fully abreast of present knowledge; whilst the final chapter on the disorders of the peripheral nerves will be read with interest, as embodying the views of the pathologist upon degenerative and neuritic lesions, which are daily receiving fresh attention at the hands of clinical observers.

We have said that this work is highly appreciated. In Germany it enjoys a remarkable popularity, having already gone through four editions. We venture to think it will be equally popular in this country, for it is a work which appeals both to student and to teacher. The former will gain from it a clear insight into morbid processes, and will be enabled to compare the results of his observation in the post-mortem room with the interpretations of the scientific pathologist. He will be greatly aided in this by the large number of highly executed engravings which illustrate the descriptions of histological appearances. The latter cannot fail to be quickened in his teaching and assisted in his exposition by a work which traverses the whole field of pathology in a systematic and orderly way. The book has a twofold merit: the text is not overladen with detail, and is therefore valuable as a text-book; and its ample bibliographical records render it equally valuable as a work of reference. Dr. MacAlister deserves the best thanks of pathologists for his labour and skill as translator and editor; and the publishers also may be congratulated upon the excellent manner in which they have fulfilled their part in its production.

Practical Medicine and Medical Diagnosis. By BYROM BRAMWELL, M.D. Edinburgh: Young J. Pentland. 1887.

THIS is evidently the first instalment of what promises to be a work of great merit; for it deals only with matters more or less introductory to the wide subject of medical diagnosis—such matters, namely, as methods of diagnosis, case-taking and case-recording, and medical thermometry. The work is based on the instruction which the author gives to his class at the Extra-mural School in Edinburgh; and, judging by its quality, we may fairly congratulate the students upon having so efficient and able a teacher. Dr. Bramwell speaks with all the authority of one who has himself fully mastered his subject, and we have nothing but commendation for the clearness and method with which he endows his subject. The chapter on case-taking is a model of what real instruction should be—guiding the student to orderly methods in his search after clinical facts, and the adoption of a strict line of inquiry into the antecedents of the case he is investigating. In the chapter on thermometry there are introduced short disquisitions upon the theory of fever and upon differential diagnosis, whilst the various types of pyrexia are fully illustrated. In the appendix will be found some pertinent remarks upon out-patient practice; and we are inclined to agree with Dr. Bramwell that senior students rather than junior should be occupied in this department. The rudiments of diagnosis are better learnt at the bedside than in the crowded out-patient room. We shall anticipate with pleasure the publication of further chapters of this undertaking, for which its author is so thoroughly well qualified.

La Goutte, sa Nature et son Traitement. Par Dr. W. EBSTEIN. Traduction du Dr. E. CHAMBARD. Revisée et augmentée par l'Auteur. Paris: J. Rothschild. 1887.

THIS is a veritable *édition de luxe* of Prof. Ebstein's well-known work; and it is prefaced by a brief and complimentary introduction to this French edition by Prof. Charcot, who trusts that in the next edition the author will take cognisance of Professor Bouchard's lectures on retarded nutrition. Ebstein's views are now fairly widely known, the main thesis being to support the doctrine of Garrod as to gout being due to a retention of uric acid in the system. This is demonstrated from the pathological side by the proofs that no gouty deposits occur in any tissue or organ except in places where the tissue has undergone necrosis, the notion being that such a retrogressive metamorphosis is induced by the action of uric acid upon the tissue. Experimental proof of this action is afforded in the results of ligature of the ureters in fowls, when, owing to retention of the excretion, highly charged as it is with uric acid, necrotic foci and deposit of crystalline urates are produced, similar changes being brought about in the kidneys when the secreting structure is damaged by the previous injection of chlorate of potash subcutaneously. Similarly, direct injection of uric acid or its compounds into the blood will produce like effects. The clinical part of the work deals with primary articular gout and primary renal gout—a distinction not perhaps generally appreciated, but fairly justified by facts. The therapeutical section is not marked by any considerable novelties, save perhaps in the rather liberal prescription of albuminoid and fatty foods, as compared with restriction in carbohydrates. An English translation (by Dr. Scott) of this work was published two years ago, but it did not, as this French edition does, contain the chromo-lithographs which represent the histology of gouty lesions in tendon, cartilage, kidney, &c., in a striking (perhaps a too vivid) manner.

Contributions to Practical Medicine. By JAMES SAWYER, Knt. Birmingham: Cornish Brothers. 1886.

SIR JAMES SAWYER has collected some of his scattered writings and subjected them to revision before reproducing them in the elegant form presented by this volume. The lectures and essays embrace such subjects as Insomnia, Intestinal Obstruction, Floating Kidney, and Phthisical Laryngitis; and they are treated in a thoroughly practical manner. That on the causes and cure of insomnia and that on constipation and intestinal obstruction strike us as being the most suggestive, and best illustrating the practical bent of the author. The essay on "floating kidney" is interesting, but in being revised it should have made mention of the great benefit derived by the surgical method of "nephrorrhaphy." The author has the faculty of expressing his thoughts clearly, and he is careful to avoid the too common mistake of writers—viz., the statement of facts outside their own experience. The book bears the impress of personal conviction, and is therefore likely to be appreciated by its readers.

ARMY MEDICAL SCHOOL.

THE summer session of the Army Medical School was opened at Netley on Friday, April, 1st. Twenty-five surgeons on probation of the British Medical Service and twenty-eight of the Indian Medical Service were in attendance. The introductory address was delivered by Professor Aitken, F.R.S., in presence of the military and medical staffs of the Royal Victoria Hospital and School and a few visitors. The lecturer took for the subject of his discourse, "Recent Pathological Researches on the Production of Disease by Infective Processes generated within the Body." In the course of his preliminary remarks he referred to the illness of his colleague Professor de Chaumont, and to the probability of his being unable to take part in the teaching of hygiene during the present session of the school, and mentioned that it had been arranged for his duties to be taken by Deputy Surgeon-General Dr. Marston, head of the sanitary branch at the War Office, who possessed very extensive experience in the subject of hygiene both at home and abroad, and who would be aided by Surgeon-Major O'Reilly, as well as by the Assistant Professor of Hygiene, Dr. Davies.

THE LANCET.

LONDON: SATURDAY, APRIL 9, 1887.

THE Medical Council is summoned to meet on Tuesday, the 10th day of May—of course in consequence of the chaos into which the examining system is thrown, especially in England, by the determination of the Royal Colleges to exclude the Apothecaries' Society from their Conjoint Scheme. The refusal of the Colleges places the Council in a very delicate position. Those who were so enamoured of the Act of 1886 may now see how much reason we had for dissatisfaction with it. The wish of the Medical Council is thus set at nought by the Royal Colleges, and we are threatened with the perpetuation of a race of practitioners not good enough, according to the standards of the Colleges—though they have no mandate to exact higher tests than those of efficiency in medicine, surgery, and midwifery. The Royal Colleges are in a state of prosperity and hilarity just now. Their funds abound, and their diplomas are in demand; but it can only be regretted that they have not used their great wealth and prosperity to cement the profession, to abolish its divisions, and to assist in the creation for England of one grand portal for her general practitioners. They have chosen to do otherwise, and to refuse the request of a majority of the Medical Council preferred by its respected President. It is not for us to anticipate the consequences of this step. But it places the Apothecaries' Society in a position in which we are sorry to see it placed. It would have been more magnanimous in the Royal Colleges to have sought the disestablishment of the Society by direct legislation than by refusing to recognise its claim to co-operate with the other authorities under the legislation of 1886. It would be idle to ignore the painful position in which this decision of the Colleges places the Medical Council. Only one thing is certain, that the Council can never acquiesce in the creation of an inferior Examining Board, to authorise something less than efficient practitioners for people who are too poor to recompense, or too unimportant to require, an efficient medical man. Such seems as we showed last week, to be the dream of some Members of the Royal Colleges who are so lightly treating a request of the Medical Council. The Medical Council has no authority to recognise a lower standard at Blackfriars than on the Thames Embankment, and the creation of an inferior class of practitioners would be as disastrous to the profession as it would be unfaithful to the Medical Act. If the Medical Council determine to grant additional examiners to the Hall, it will not be likely to take any low estimate of the additions that will be necessary. For twenty years medical reformers have hoped for legislation that would have equalised what ought to be equivalent examinations, so that medical men who have obtained their qualifications from one body could hold their heads up before those who have received their qualifications from a similar body in another division of the kingdom. But only last week Mr. BERKELEY HILL commented on the convenience of Edinburgh, Glasgow, and Dublin as places of refuge for those who have been repeatedly rejected in London. We leave the representatives of Edinburgh, Glasgow, and Dublin to make their own acknowledgment of this compliment from one of the Council of the College of Surgeons of England. Our present purpose is rather to direct the attention of the Medical Council to Mr. HILL's view of its duty at the coming meeting—viz., to give sanction and status to a body that will pass men whom the Royal Colleges of England will not think worthy of being passed. This raises a view of the duty of the Council which cannot be too seriously considered before it meets. It will be curious if the Medical Council should become, as it were, partners in a third-rate Examining Body meant for the accommodation of those plucked by the Colleges chiefly charged with testing the efficiency in candidates.

The retirement of Sir HENRY ACLAND at the approaching meeting will throw upon the Council one of the most difficult and important duties which it has to perform. Hitherto it has been free to take its President from outside the Council. Now, under the Act of 1886, it must choose one of its own members. There has never been a time when it was of so much moment as it is now that the President should be a man of strength, of impartiality, and of public spirit. We have given one specimen of the questions about to engage the attention of the Council. There are half a dozen more; and if the Council considers its own future reputation it will select a President with such qualifications as we have named.

THANKS to the many labourers in the field of neurology, we are by no means in total darkness concerning the nature of hypnotism, catalepsy, trance, and allied conditions. Doubtless we see through a glass darkly, but this may be said of all knowledge, including medicine. We shall first give an exposition of the facts met with in the states under consideration, and then bring this knowledge to a focus, and endeavour as far as possible to see what anatomical and physiological interpretations may be put upon the facts. It would take up far more space than we have at our present disposal to discuss the strictly psychological and other mental aspects of these diseases, but we believe that at the present juncture a physiological explanation or attempt at an explanation may prove acceptable in the face of the case of M. CHAUFFAT, now attracting so much public attention.

In catalepsy, hypnotism, and the like states, the conspicuous feature is the loss of the ordinary consciousness of the individual, the subject of the abnormal state. This loss varies in degree. It may be profound and deep, so as not to be recovered by any artificial means, or it may be recoverable by external stimulation of greater or less intensity. Again, it may vary in itself, probably as the result of internal conditions of the cerebral cortex, and this variation may be so great that, on the one hand, consciousness is almost normal, or, on the other, fully in abeyance. It is most necessary to recognise this irregularity and variability in order fully to understand, so far as is possible, all the facts that have hitherto been observed. There are, besides the loss of consciousness, other phenomena of which mention must be made. And the same variableness may be met with in these. An individual in

the hypnotic state may perform certain actions, often of a complicated nature, under the influence of what our Paris *confrères* call "suggestion." This fact implies the persistence of function of certain tracts of brain tissue almost certainly situated above the level of the lowest sensori-motor areas, spino-bulbar centres, and probably in the cortex of the cerebrum and cerebellum. In catalepsy, as a rule, rigidity of the voluntary muscles also exists, and likewise a condition known as wax-like plasticity—flexibilitas cerea—a state which is detected after overcoming the primary muscular rigidity, and which allows of the limbs or other parts of the body being placed in the most awkward, constrained, and inconvenient postures. Indeed, the tissues appear to be as plastic as wax of a certain temperature, and can be moulded almost to the same extent. Once moulded, the tissues take on a rigidity that casts the muscles as though they had suddenly solidified, and from pliable wax had become solid bronze. But this is not all. Certain kinds of stimulation—as, for example, gentle but rapid stroking of the skin, or pressure on some nerves—have the property of relaxing the rigidity and of causing the limb or part to return to its customary condition. Of the accuracy of the facts which we have just described there can now be no kind of doubt. The phenomena may be ascertained without the slightest difficulty. Take, for example, the fixation of the leg of such a patient as CHAUFFAT. Let anyone in full health, strength, and consciousness try conclusions with this patient. He will find that attempts at maintaining his own lower extremity in the posture he may already have placed CHAUFFAT'S will not be long successful. Most recumbent individuals could not maintain one leg raised at an angle of 60° for more than fifty or sixty seconds, without considerable pain and tremulousness developing, and leading to a strong desire to desist from the continuance of a task involving so much distress. With CHAUFFAT, or another cataleptic, several minutes would elapse ere tremor developed, and the leg would not fall until complete exhaustion had set in—an exhaustion that takes a much longer time to appear than in a conscious healthy subject. It is hardly possible for anyone to simulate the condition of flexibilitas cerea, and it does not seem within the bounds of reason to suppose that a conscious individual would permit the various painful excitations of his senses without evincing some signs of his having experienced them.

The explanation, anatomical and physiological, that we have to offer may be fairly stated in the following manner. Consciousness is only possible physiologically when the bulk of the cortical perceptive centres are in a state of normal functional activity. Loss of consciousness varying in depth is concurrent with loss of function of the cortical perceptive centres, also varying in degree. We know as well as it is possible to know that removal or damage of the whole of the cerebral cortex behind the "motor region" would destroy perception of all sensory impressions. We are also perfectly certain that a still more limited lesion of the centripetal paths could produce a similar effect. An individual in whom the "sensory crossway" or posterior third of the posterior limb of the internal capsule on each side had been completely severed would be totally anæsthetic to impressions on his tactile, auditory, visual, olfactory, gustatory, and probably visceral organs. If we imagine that in catalepsy there is a total loss of the functions of the cortical perceptive centres—a loss that may be caused by essential molecular changes, or due to blood poisoning or coarser disease—for it must be remembered that meningitis, tumours, softening, and malaria may be the efficient causes of catalepsy,—an explanation, imperfect and incomplete we grant, would be forthcoming of the symptoms and signs met with in catalepsy and hypnotism. It is highly improbable that an individual in possession of the proper use of the "motor" and prefrontal regions of his brain would be in a state of ordinary consciousness. In these regions are locked up innumerable motor mechanisms, and these may be unlocked and set agoing through the centripetal channels not concerned in the causation of consciousness. Indeed, it is a fact that all the movements which a cataleptic individual can be made to perform come within the category of automatic movements. It is clear that in the absence of consciousness new movements cannot be acquired, and we may take it for granted that mechanisms exist, preformed in the brain, for all the actions ordinarily performed by us. As an illustration, we need but mention the circumstance that most individuals go through such processes as undressing in a purely automatic fashion, the mind being occupied all the while by a train of thought. The placing of CHAUFFAT'S hand in the fighting posture leads to the development of a menacing expression of the countenance. Consciousness need not be involved in such an association, for it is certain that mechanisms of a sensori-motor kind exist near together in the motor region of the brain—a region which there are good grounds for believing may be the seat of "muscular sense" as well as of certainly efferent motor impulses. Plasticity and rigidity of muscle can hardly be explained on the assumption that the bulbo-spinal centres are alone in action. It would obviously not explain the former phenomenon, and certainly not the rigidity; for this implies over-action, of which there is no other evidence than the mere rigidity, for the reflexes as a rule are not increased, and may even be diminished, in catalepsy.

IN whatever shape the proposals of those anxious for the reform of the University of London may be adopted, the existing constitution of the University is doomed. In Sir E. FRY'S original scheme, in that of Sir P. MAGNUS, and in the one now before the Senate, associated Colleges and their representatives are introduced between the Senate and the members of Convocation, and duties of more or less importance are to be delegated to them. The Senate and the graduates in Convocation will be supplemented by Faculties and Boards of Studies, either as such, as in the new scheme, or as a Council of Education, as suggested by Sir P. MAGNUS, and on these the representatives of the Colleges will form the chief or sole element. It is by this infusion of teachers that the business of a local university is mainly to be carried on; but we question much whether the graduates in Convocation will not successfully attempt to weaken these clauses and substitute for them those in Sir P. MAGNUS'S scheme. If such a course be adopted, the teaching element will be small in proportion, and so liable to be outvoted in the Boards of Studies and the

Council of Education by representatives of Convocation, who may have no knowledge of the requirements of a suitable curriculum, so that the value of the other proposals will be reduced to a minimum. But even if the provisions of the new scheme be passed, they are too cumbrous and too ill-defined to give any reasonable hope of their being made capable of forming a basis for a real Teaching University, which is the great want in London. Bodies of insufficient weight and standing must be admitted if these clauses stand, and the larger educational Colleges will practically have no increased representation, influence, or power. This seems to us a fatal objection to the scheme. It is better to wait for a real Teaching University in London than to adopt a feeble substitute, which will weaken the absolute rule of the present Senate and impair the efficiency of the Examining Board for the empire, and not satisfy the aspirations of the teachers in the London Colleges which can fairly claim to be of university rank and standing. These defects will be clearly shown in an analysis of the proposed changes.

The University is to consist of (1) Senate, (2) Convocation, (3) Associated Colleges, (4) Faculties, (5) Boards of Studies, with the Queen as visitor, instead of merely Senate and Convocation as at present. The thirty-seven Fellows composing the Senate are to be divided into sixteen Crown nominees, the chairman of Convocation, twelve representatives of Convocation voting as graduates in Arts, Laws, Science, and Medicine separately; and eight direct representatives of the Faculties, also voting separately. The representatives of University and King's Colleges, the Colleges of Physicians and Surgeons, and of the Legal Councils, which were expressly named in the former schemes, have disappeared altogether, and their places are practically given to the representatives of the Faculties, so that the exceptional position of University and King's Colleges, and the advantages of association with the medical and legal corporations on which formerly so much stress was laid, are now put aside; but by a majority of one the Senate has determined that this question shall be reconsidered by the Special Committee. Life Senatorship is to be abolished in favour of a tenure of eight years; but Convocation has already favoured the still shorter period of four years, and this seems to us preferable, especially as retiring members are eligible for re-election. Except for an increase from nine to twelve representatives on the Senate, the powers of Convocation will remain unchanged, whereas, in Sir P. MAGNUS's scheme, which Convocation adopted on June 29th, 1886, members of Convocation, as well as the Colleges and the examiners, were to form the Council of Education or intermediate body between the Senate and the graduates. This difference is a vital one, and we fear it will endanger the passing of the scheme through Convocation, whilst, if the alternative be adopted, the whole scheme will in the eyes of the teachers be worthless. The Faculties are now to be constituted solely by the representatives of associated Colleges, divided under Arts, Laws, Science, and Medicine, and each Faculty will elect members, who, with an examiner in each subject in the Faculty, will constitute the Board of Studies in each Faculty. These Boards of Studies will elect a chairman every year; consider and report to the Senate upon any matter referred to it by the Senate; express opinions on any matter connected with degrees, examinations, and teaching; and deliberate, if so requested, with the Senate, or report to the respective Faculties. They will thus form either distinct or conjoint permanent consultative bodies, whilst the Senate remains the sole executive. The associated Colleges are to be selected from Colleges and teaching institutions in any part of the United Kingdom, and may be named in a schedule prior to any application for a Charter, or be afterwards admitted by a Committee of Selection. This will be considered a weak alternative by those interested in promoting a Teaching University in London, and cannot but be opposed by that Association. The Medical Schools and Colleges from which the University receives certificates for degrees in Medicine will retain their right of giving such certificates, whether they be or be not associated Colleges. The present method of granting degrees is to be maintained, except that the Senate will ask for power to grant honorary degrees, which Convocation has always steadily declined to sanction. The last clause is so peculiar that we reproduce it *verbatim*: "Power to hold real property, and to accept grants, gifts, devises, and legacies for the purposes of the University, including the establishment of professorships and scholarships, and the furtherance of regular and liberal education and of original research. Provided that no professorship or lectureship be established in the University of a kind likely to compete with any teaching given in University College, London, or to injuriously affect the reasonable prospects of that College." Negotiations with that College will be held before applying for a Charter. The opposition of University College is to be bought off by this clause, and every other College and Medical School must take care of itself. A more palpable bribe to the section of the professors in University College which opposes the movement for a Teaching University, or a more unfair proposal, was never introduced into a University scheme than this proviso. Other institutions are concerned in the higher medical and general education as well as University College. As some questions are referred back to the Special Committee, which is requested to confer with the Committee of Convocation, and then report to the Senate, it is obvious that the scheme will not be sufficiently complete to lay before Convocation at the May meeting, and that a special meeting will have to be summoned for its consideration at a later date.

PROFESSOR MAX MÜLLER has inaugurated a good work, which may be described as the repair of philosophical breakages. There can be no question that philosophy and science are suffering from that merciless reduction of their subject-matter to very small pieces which has resulted from abuse of the analytical method, both in inquiry and in criticism. The aim of every student of art and nature has been to discover differences between things, and to formulate what have been termed *specific* characteristics with a view to classification. It has been so in the natural sciences, and it has been so in what may be termed the unnatural sciences, or those which deal with abnormalities, including pathologies. The gain would be enormous if this plague of disintegration could be stayed. Professor MAX MÜLLER thinks DARWIN would have added greatly to the already high value of his services to philosophy and science if he had abandoned the term *species* when he placed the facts

of differentiation in a new light by his discovery. Accepting, as we must, the doctrine that words are not merely the instruments, but in a sense the integers of thought, it is manifest that any misuse of terms must be of more serious moment than any mere clumsiness in the naming of facts. MAX MÜLLER would improve our intellectual work and clear our brains by purifying our language, and with a view to the simplification of the task he would have us cut adrift as much as possible of the lumber that encumbers and strains both philosophy and science. This is the lesson we read in his lecture on Thought, and it is one that may well be learned by all who have the real and far-reaching interests of truth and knowledge at heart. To think simply and well is the first condition of good and useful labour in the province of mind; and simple, clear, and effective thinking is not possible unless "thinks," or *things*, are understood in their simplicity. The practical difficulty of simplification lies in the fact that everything is many-sided, and that, in order to obtain a sufficient notion of an object or a subject, we must, so to say, walk round it and observe each of its faces, and in doing this we cannot possibly avoid making such abstractions as are essential to the recognition of differences. There is food for earnest reflection in Professor MAX MÜLLER'S discourse on this most interesting subject, and we can only regret that it does not form part of his programme to point out precisely how the fragments of knowledge grouped under the head of the medical sciences might be pieced together in such fashion as to make the views of those who need to be especially single-eyed and clear-sighted less obscure and more complete.

Annotations.

"Ne quid nimis."

DEGREES FOR LONDON MEDICAL STUDENTS.

THE decision arrived at by the Committee of Delegates of the Royal Colleges of Physicians and Surgeons to recommend their respective Colleges not to confer at present with University and King's Colleges, but to proceed conjointly and independently of other bodies, in their endeavour to obtain the right to confer degrees in Medicine and Surgery, will be received with much regret by all who are anxious to secure an academic degree for medical students in London, and will in no way diminish the opposition to a mere professional title, but tend to increase it. The provincial schools will insist on their claim to equal rights and privileges with the London medical schools, in any action taken by the two Royal Colleges, of which they claim to be constituent factors, and they will be strengthened by the professors and councils of University and King's Colleges, who will protest against a degree being conferred, in one Faculty only, by two professional corporations without university rank or academic status. The entire weight of the University interest in London and the country will now be thrown against the scheme, whereas by conjunction with University and King's Colleges the antagonism of the University of London would have been the only opposition to be apprehended on the academic side, and we have no doubt on which side the argument for "least resistance" really lies. With the University of London applying for a new charter, which will be opposed by many of its own graduates in Convocation and by those who are promoting the movement in favour of a Teaching University in London; with University and King's Colleges also applying for a charter to grant non-medical degrees, which will be opposed by the existing University, which dares not let its largest colleges secede without a struggle; with the Royal Colleges, again, endeavouring to obtain a charter to grant medical degrees—a movement that will be opposed by the provincial schools if a residential qualification be inserted and only half-heartedly supported by London teachers if this be omitted; by University and King's Colleges, who know that now or never they must become real constituents of a University; by all interested in founding a Teaching University in London, who will not willingly see the chief Faculty of such a University slip from the combination; by the Irish and Scotch corporations, which will seek similar powers out of jealousy and self-interest; and by the Apothecaries' Society, which has been contemptuously thrust aside,—the outlook is not a hopeful one. We are quite sure that it would have been more to the advantage of students if the question had been considered on a wider basis, and that less opposition to the degree would thereby have been aroused. Indeed, we still hope that the Crown will insist on the different bodies waiving their personal prejudices and jealousies, and compel them to unite to form a real University, such as exists in every metropolis and educational centre in the world except London.

RECENT CHANGES IN EXAMINATION REGULATIONS.

Two regulations of some importance to students were recently passed by the Colleges of Physicians and Surgeons upon the recommendation of the Committee of Management. The one refers to the period at which a candidate may again present himself after rejection at the final examination. Hitherto this period has been fixed at six months—rather a long time in the case of those who nearly attain the requisite standard, and entailing some hardship at the close of their curriculum. We think that the Committee have done wisely to allow such candidates as obtain fourteen out of the fifteen marks required to pass such examination to be admitted to re-examination after a period of three instead of six months' study. The other change adopted is in the regulations for the primary and elementary examination in anatomy and physiology. It allows a candidate to be admitted to this examination on the completion of his first six months' attendance at a recognised medical school (exclusive of the months of April, August, and September), instead of the stipulation that he should not be allowed to compete until the close of his first winter session. This change ought to be productive of a larger May entry in the schools, and a large number of candidates at the January examination, which will greatly relieve the plethora now experienced in April. With reference to this question, it may be useful to point out certain other directions in which these examinations may be improved. The principle recognised in the foregoing regulation of the first examination might well be applied to the second examination also; and in that case there would be no need to hold more than three such examinations yearly. The October examinations in anatomy and physiology are of little advantage, since the schools are closed during the greater part of the interval between that examination and the preceding. It is only for the final examination that the opportunities for study—i.e., clinical work—are available during this time. Again, the option allowed to candidates of entering for one subject only should not obtain for the second examination, anatomy and physiology being so closely connected with one another. A more liberal system of marking might also with advantage be introduced, for a maximum of fifteen marks for a whole examination is an absurdly small number, and must be diffi-

cult for the examiners to work with satisfactorily. Lastly, a candidate who has been rejected in all the subjects of the first examination is required to pay a higher fee than that originally charged, for a rejection in each of the four subjects entails an additional fee of £3 3s., so that on his second appearance he pays £12 12s. instead of £10 10s.! This is clearly anomalous, and has probably been overlooked by the Committee of Management, who might profitably take the whole subject of fees into consideration.

THE ELECTION OF PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS.

WE are glad to chronicle the fact that, at the meeting of the College of Physicians on the 4th inst., Sir William Jenner was for the seventh time elected to fill the office of President. The somewhat antiquated mode of election, without previous nomination, required (as it often has done) a second ballot, for unless on the first voting the Fellow whose name stands first has obtained the suffrages of two-thirds of those present at the meeting, the Fellows are called upon again to decide between him and the Fellow whose name stands next on the list of the first ballot. It is clear, therefore, that the first ballot does not indicate the full wishes of the College, many names often being returned with the view of showing who are eligible for the high office. It may be interesting to note that Sir William received 73 votes out of 120, the Fellows amongst whom the remaining 47 votes were distributed being Sir William Gull, Dr. Quain, Sir A. Clark, Dr. Wilks, Dr. Johnson, Sir H. Pitman, Dr. Andrew, and Dr. Ogle. Sir W. Gull's name on this occasion stood second, and the second ballot resulted in the return of Sir W. Jenner by an overwhelming majority—99 to 13. Sir William accepted this result as the practically unanimous wish of the College that he should continue as President for a seventh term, and he suitably expressed his sense of the high honour thus conferred.

PHYSIOLOGICAL ACTION OF NITROUS OXIDE GAS.

DR. DUDLEY BUXTON has communicated two valuable papers upon the above subject to the Odontological Society, based upon numerous clinical observations and experiments. The effects of nitrous oxide inhalation upon the mammalian organism are, he says, broadly speaking—(1) a condition of anæsthesia; (2) an emotional state, provoking a sensation of exhilaration—in fact, it plays the *rôle* of a stimulant; (3) it gives rise to modifications of the respiratory and (4) circulatory systems; and (5) provokes marked muscular movements, which may be classed as (*a*) rigidity and (*b*) jactitations. The anæsthesia produced by nitrous oxide is not dependent upon analgesia or loss of sensation of painful impressions of the sensory end-organs, such as that produced by cocaine &c., or upon failure of the conducting sensory nerves, for sensation is retained until the perceptive powers themselves cease to receive; moreover, there is immediately anterior to the loss of consciousness a hyperæsthetic stage, therefore it may be concluded that the nerve centres are acted upon. The ways by which nitrous oxide may enter the system, and is enabled to produce its special effects are—either that it gives rise to other bodies by changes in its chemical form, or by acting as an irrespirable gas and causing asphyxia, or by exercising a specific action, just as strychnine does. Dr. Frankland came to the conclusion that nitrous oxide was not decomposed during its sojourn in the body, basing his opinion upon analyses made of the air expired by rabbits when confined in an atmosphere of mixed air and nitrous oxide. In the first stage of asphyxia, that of dyspnœa, there is an increase in the respiratory movements, both inspiratory and expiratory; in the second, a dominance of the expiratory efforts, culminating in general convulsions; in the last, exhaustion, with long-drawn inspirations, gradually dying out. The blood-pressure during the first and second stages rapidly rises. Dr. Dudley Buxton has never observed an increase in the expiratory movements when HO_2 has been administered, which are merely increased in number and depth, or expiratory convulsions, notwithstanding the gas has been pushed to its utmost limit, and from a large number of sphygmographic tracings the tension in the arteries has been lower than normal. In experiments upon dogs, Dr. Buxton found that where a trephine-hole was made through the skull, during the inhalation of the gas the brain pulsations became more forcible and somewhat hurried; then the brain substance was seen to swell up, until at last it actually protruded through the aperture; whereas in a similar experiment, with the trachea occluded, the brain receded, sinking away from the opening. Other experiments showed that the heart's action was but little interfered with by nitrous oxide, even where the inhalations were pushed until respiration was interrupted; during asphyxia, on the other hand, a rapid and continuous increase in blood-pressure invariably occurred. The dose of nitrous oxide required to produce insensibility varies very considerably in different persons—a fact which supports the view that nitrous oxide exerts a specific action on the nerve centres. Dr. Buxton also discusses many other interesting points in the action of the gas, such as the occurrence of hallucinations.

THE CASE OF TRANCE.

NORMAL consciousness has not yet returned to M. Chauffat, who is now in the thirteenth day of his "sleep." But there are signs indicating the possible near approach of restoration to the natural state of life. The loss of consciousness is less profound. It is possible to awake Chauffat with but little external stimulation. Moreover, during the past three days evidence of a wider awakening of intellect has been shown; acts are performed indicating the revival of considerable powers of memory. The anatomical substratum of mind can be aroused to such a state of activity that apparently correct answers relating to questions involving a ready remembrance of past scenes and acts may be obtained from the patient. These replies cannot be communicated by word of mouth, but Chauffat makes himself understood by the aid of fair penmanship. To the lay mind, doubtless such facts appear extraordinary, but medical men are familiar with cases of brain disease in which similar phenomena obtain. As happened after Chauffat's previous attacks of hysterical catalepsy, paralysis of the left leg and dumbness persist some time after the recovery of power over the other movements of the body. It is difficult to explain in Chauffat's case why the cerebral centres controlling the speech movements—ordinarily subserved by the *left* side of the brain in right-handed individuals—and those presumably in the right side of the brain presiding over the movements of the left leg should remain so much longer in the "sleeping" state than the large remainder of the cerebral cortex. The ultimate recovery of these centres, however, proves that they are not the seat of gross changes. Employing an analogy from electricity, we may imagine that the speech and left leg centres take a longer time to recharge with the vis nervosa. It may be remembered that Chauffat has uttered a few words, such as "thief," "scoundrel," and a number which is believed to be that of the cab in which he was last driven. Such ejaculations also show that the speech centres can be thrown into action, but probably only as the result of powerful excitation. This is in accord with all previous observations. It may be asked why the above-mentioned words, and not others, were spoken. The reply to this question is that it is very pro-

bable that the words were some of the last used or about to be used by Chauffat before he became unconscious. Highly probable is it that the molecular changes, the accompaniments of these words, in the speech centres leave more than usually permanent traces, the physical bases of memory, which render the words more liable to be uttered, under the influence of incitations, than words which have left less indelible markings. The other functions of the patient have undergone a satisfactory improvement, but their condition presents little that is of special interest. We may refer for further comments on the trance condition to an article on page 736.

THE CROONIAN TRUST.

AFTER some delay and much discussion, the Royal College of Physicians have agreed to a scheme whereby the large funds that now accrue from the Croonian Trust may be utilised. It may be remembered that last year it was decided that there should be one or more lecturers appointed "to deliver lectures on one or more subjects in Anatomy, Physiology, and Pathology, with a view to the prevention, control, and cure of diseases," and that the funds should be administered in payment of such lecturer or lecturers, and in promoting scientific investigations on the subjects of the lectures. The regulations adopted at the last meeting of the College—which will be found on another page—are in accordance with these resolutions. It will be seen that provision is made for the reappointment of the lecturer, whose duty it will be to deliver a course of not less than four lectures annually. In this way the lecturer will be free to take up subjects which may entail prolonged investigation. At the same time, it might have been well to have placed some limit upon his term of office, the only objection to that being that he might feel bound in every case to hold it for the full number of years assigned. The devotion of the surplus of the fund to defray expenses of original investigation by a past or present Croonian lecturer strikes us as somewhat limiting the benefits to be derived from the fund; and we should prefer to have seen the proposal to nominate, from time to time, a junior Fellow to a Croonian Fellowship. But the committee, who doubtless considered this point, may have felt their hands tied by the original terms of the trust. It now remains for the choice of the President and Censors to be made with circumspection; and we may hope that the cause of scientific medicine will be promoted in the selection of lecturers who will be enabled to devote their time to original investigations. Lastly, it may be noted that the time fixed for the delivery of the lectures is in the month of June, instead of in March as at present, and that the first course will be given in 1888. It must therefore soon devolve upon the President and Censors to make their selection.

ALLEGED ILL EFFECTS OF VACCINATION.

AN inquest was held by Dr. Danford Thomas on the 29th ult. touching the death of Ellen Jane Herring, aged four months. The deceased child was vaccinated by the public vaccinator a month prior to its decease. A few days before death another medical man was consulted as the child grew ill. Coma supervened and proved fatal. A certificate was given that death was due primarily to meningitis, and secondarily to "the effects of vaccination." The vaccinia had progressed in a normal manner in every particular. There was very little constitutional disturbance, and unusually little inflammation about the vaccination points. Several other children were vaccinated from the arm of deceased. There were no signs or symptoms of blood poisoning. The manner in which the death certificate was written was most unfortunate, for at the inquest the doctor who signed it deposed that he intended to convey no more than that vaccinia, being a specific fever, had somewhat lowered the vital powers of the child, and so to a certain extent had acted as an accelerating cause of death. So far this was true, but both the popular and professional interpretation of the certificate would be something far graver. In short, the certificate was calculated to credit vaccination with the death, and discredit a valuable life-saving procedure. Very properly a post-mortem examination was ordered to be made. At the necropsy it was found that there was typical tubercular meningitis with hæmorrhage beneath the arachnoid. The inflammation was purely basal. Both lungs were thickly studded with quite recent miliary granulations. The mesenteric glands were tubercular, some containing caseous matter, and others suppurating. There were no metastatic infarcts or abscesses; in fact, there was complete absence of anything that could be assigned to pyæmic infection. The vaccination scars were normal, and there was no infiltration of inflammatory matter around them or in the associated lymphatic glands. Mr. Pepper stated that, in his opinion, the vaccination had been satisfactorily performed and that the vaccinia had run a natural course; and, further, that the vaccination had little or no effect on the development and progress of the tuberculosis, which had commenced previously to it, and which would inevitably have proved fatal within a short period had vaccination not been performed. The jury unanimously accepted these opinions, and recorded the same in their verdict.

THE CARMARTHEN INQUEST CASE.

ON March 25th last an inquest was held at Carmarthen before Mr. John Hughes, F.R.C.S., coroner, concerning the death of George James, aged forty-seven, head constable. From the evidence reported we gather that deceased had suffered for some time from nervousness and want of sleep, but that otherwise he was not known to be in ill-health. Soporifics had been administered by Mr. J. E. Edwards, M.R.C.S., and on the day of his death deceased applied for more medicine. Mr. Edwards made up a draught containing half a drachm of chloral hydrate and half a drachm of bromide of potassium, and gave both written and oral instructions that half the contents of the bottle were to be taken at once and the other moiety three hours later if required. Deceased wilfully disobeyed the doctor's orders and took the whole quantity in one dose, and almost immediately died. If the medicine was dispensed as described we cannot doubt that the death was due to other causes, and even if the dose had been large enough to be probably a fatal one, we should not expect death to occur so suddenly as it did. The medical man who made the post-mortem examination deposed that "there were no symptoms of chloral poisoning, and no signs of disease in the internal organs, and he could offer no opinion as to what was the cause of death." The jury returned the verdict, "Death by the visitation of God." On theological grounds such verdict might be found in every case of death; but from a medical and scientific standpoint it is merely a record of ignorance of the facts underlying the event under consideration. It must not be concluded that because no chemical tests for chloral give affirmative evidence of its presence in the body after death, therefore it may not have been taken even in a lethal dose, for experience teaches the contrary. In our opinion, Mr. Edwards must be acquitted of all blame in the unfortunate matter of the death of Mr. James. He had a perfect right to prescribe chloral, if, in his judgment, he thought fit; and certainly he cannot be accused of carelessness in the matter of giving directions as to how the medicine was to be taken. We fully endorse the protest be made at the inquest, that he was not informed of the time and place of the post-mortem examination. To some

extent his professional conduct had been impugned by the friends of deceased, and, moreover, the coroner, in the exercise of his judicial function, cautioned Mr. Edwards as to the evidence he was about to tender, thus properly, but unfortunately, giving some colour to the loose accusation of blame that had been laid at his door. It is true there is no legal responsibility compelling the coroner, or the medical man commissioned to make the examination, to give notice to individuals concerned in the issue of the inquiry, but it is none the less desirable that such practice should always obtain. The coroner for Central Middlesex is very strict on this matter of procedure. With the order for making a post-mortem examination he encloses notices for any other medical men concerned, leaving the time of the examination to be filled in by the gentleman who is to officiate at the necropsy. We commend this discretionary action to all coroners, medical or otherwise. Mr. Edwards has our sympathy in the somewhat painful position in which he has been placed.

CONGENITAL OCCLUSION OF THE PHARYNX.

A SPANISH practitioner, Don M. D. Illera, gives in *El Siglo Médico* an account of a case in which a newly born child could not be taught to suck, and whose mouth on the introduction of the finger grasped it like a ring. On inspection the middle third and edges of the tongue were found to be connected to the superior alveoli by firm adhesions, which entirely prevented the organ from being depressed. In addition to these adhesions, two little tumours were seen on the palate near the arch of the fauces, which almost occluded the passage into the pharynx, thus rendering swallowing of liquids almost impossible. It was evident, therefore, that unless operative measures were resorted to the child must necessarily succumb very shortly from sheer inanition. The parents, however, though the state of the case was laid before them, refused to permit of an operation till the fourth or fifth day, when they decided to allow it. Don Illera seized the tumours with forceps and cut them off at the base, touching the bleeding surfaces immediately with the actual cautery. The adhesions were then divided, and after the application of a sponge with cold water for a few hours, repeated very frequently, the child was able to swallow some milk quite easily, and ultimately attained complete use of the tongue. Don Illera was induced to publish this case, as he once saw a similar case in which the practitioner in attendance had considered the risk of operation too great to be attempted.

MORAL DISCIPLINE OF LUNATICS.

GRANTED that very much of the wrong-doing of eccentric persons is the outcome of mental derangement, the question arises whether or not, in the interests of the individual as well as of society, it ought to be regarded as crime or insanity. We are of opinion that this question can never be answered as directly and simply as many respectable authorities desire that it should be. We incline to the belief that no hard-and-fast line can ever be drawn between crime and madness. There are undoubtedly, we think, cases in which, as Dr. Edgar Sheppard pointed out years ago, there is an admixture of wickedness and disease in which the proportion of the two constitutional elements may vary almost indefinitely. If that be so, then it is manifest that each individual case must be studied and treated on its particular merits. Accordingly, we are not disposed either to blame all judges and justices of the peace who sentence lunatics to terms of imprisonment, or to maintain the plea of insanity on behalf of all transgressors. Moral discipline of the sort which consists in the punishment of offences, whether these offences be wholly malevolent or partially insane, is by no means inadmissible in the treatment of mental disorder or disease. It is not for the advantage of the weak-minded that they should be allowed to think that the hypothesis of irresponsibility will cover any multitude of sins. Better far let these half-mad folk understand once for all that if they outrage public decency or assault their neighbours they will have to suffer for the offence. These are general remarks, and we do not wish to apply them specifically; but the principle of moral discipline is, we are convinced, a sound one, and neither the lunatic population nor the community as a whole will suffer by reason of its being enforced.

THE CORONER'S CENSURE ON A MEDICAL STUDENT.

LATE on Saturday night, the 26th ult., a man aged twenty-four, was taken to St. Thomas's Hospital by the police; he was said to have been "run over" by a tramcar about an hour previously. A medical man, who had seen him earlier, thought that he was suffering from internal injuries. The dresser who saw the man on his arrival at the hospital made a very careful examination, but failed to discover anything beyond a small scalp wound, two abrasions on the back, and another on one of the legs. The patient was quarrelsome, could not answer questions coherently, presented no signs of shock, and was in a condition of semi-intoxication. Without referring to the house-surgeon, the dresser, a Japanese gentleman, told the police to take him away. He was taken to the police-station and seen several times during the night, as he was very noisy and vomited frequently; he also went to the watercloset once. No complaint was made during the night, nor did he ask to see a doctor. In the morning he dressed himself, and then complained for the first time of pain in the epigastrium, but left the station by himself, having given bail. He was soon after found by a policeman, not far from the station, leaning against a wall and complaining of great pain in the abdomen. The man was taken to the Wandsworth Infirmary, where he died the same evening from peritonitis, which at the post-mortem examination was found to have been caused by a small rupture of the duodenum; there was also a slight rupture of the liver. At the inquest on the case, the coroner censured the dresser for not having called the house-surgeon to see the man, saying that if it had not been for the careful manner in which he had examined the patient a verdict of manslaughter against the dresser might have been returned. We think in such a case no person in a subordinate position should take upon himself to pronounce an opinion or assume responsibility unnecessarily. Although the house-surgeon might not have recognised the injuries which were shown at the necropsy to exist, and the symptoms of which were so long delayed, still he would probably have admitted such a case and watched for their development.

THE DIMINISHING USE OF ALCOHOL.

WE share the satisfaction of all our contemporaries in reflecting on the significance of a less expenditure on alcohol. The expenditure on drink in 1886 was £122,905,785, as compared with £123,258,906 in 1885, or £363,121 less. Ten years before, in 1876, the highest expenditure was reached—viz., £146,288,759, or £4 9*s.* per head, as against £3 7*s.* 8*d.* in 1886. It is deeply to be regretted, however, that the diminution in one year is not more than £363,121, in spite of all the teaching of medical science and personal experience. Not only is the diminished amount drunk still enormous, but it is drunk by an ever-diminishing number of persons. For there is an ever-increasing number of persons who either totally abstain or drink exceedingly little. It is drunk, too, in a wrong way. All casual drink-

ing, drinking on an empty stomach, is bad, and makes directly for disease. We must be thankful for any improvement, however slight. But the disease implied in the consumption of nearly 123 millions of money's worth of alcohol is enormous. A recent return to Parliament shows a steady and large decrease of alcohol consumption in workhouses. In the year ending Michaelmas, 1871, the total cost of intoxicants used in workhouses in England and Wales was £82,554. The cost for 1885 was £44,820. In some workhouses with a large number of inmates, as Wandsworth, Lambeth, and Bethnal-green, no intoxicants at all were used. Similarly with several provincial workhouses. It cannot be too much impressed on guardians that there should be no interference with the medical officers in regard to the prescription of alcohol for the sick, nor upon the medical officers that theirs is the responsibility of prescribing it with care. The Parliamentary returns show that in workhouse practice, as in private, the profession is alive to its responsibilities.

THE HOXTON MURDER CASE.

WE imagine there are few persons who will demur to the finding of the jury in this case at the Central Criminal Court, for, guided by the light of the existing law of this country, there was abundance of evidence to show that Currell was guilty of the crime of wilful murder. It is true there was no direct or personal evidence against him, but the indirect or circumstantial was so complete and consistent that no doubt can be left in the inquiring mind that the verdict was fully warranted by the testimony. The convict on the day of the murder borrowed a key of the house where his sweetheart, the deceased woman, then lived. Shortly afterwards, when accosted by an acquaintance with the fact of the death, he replied, in answer to the observation "This is a serious matter for you," "Yes, it is." At the same time he showed no concern to learn the circumstances surrounding the death of Lydia Green. His purloining deceased's wages from her fellow-workpeople, together with his subsequent flight, can only be explained on the theory of his guilt. But, putting on one side the bearings of the legal technicalities of the case, we find ample grounds to warrant us in affirming that the crime was not wilful murder as understood by the medical jurist. That Currell knew the nature and consequences of the act he was about to commit we do not attempt to dispute, but that he was of sound mind and understanding we feel justified in denying. There is scarcely a murder trial of the kind under review in which the presiding judge does not brush against the tangled thicket of law and alienism, and in the recent gaol delivery at the Old Bailey Mr. Justice Grantham, although impartial in his summing up, managed, we assert with all respect, to run counter to the laws that govern mental science. His lordship remarked in his charge to the jury: "The absence of motive of anger, or of passion, or of any wrong to be revenged only increases the enormity of your crime." This sentence would meet with our approval were it justifiable to assume that all the facts underlying the crime were known (and who can doubt that many were hidden in the minds of the murderer and his victim?), and still more that Currell was at the time free from impulses ungovernable by an impotent will. As regards motive, we are entirely at one with the learned judge, for in few instances can the act of murder find a commensurate excuse, and, as a rule, it is idle and futile to endeavour to fathom the causes of capital crime where the evidence is only circumstantial. We trust the Home Secretary will order a medical commission to inquire into Currell's antecedents and his present condition. The justification for such a procedure may be found in Mr. Justice Grantham's weighty remark: "*It may be that you committed this murder in some unaccountable and irrational state of mind.*" We are no advocates for allowing crime to go unpunished, but it is our bounden duty to plead that life shall not be taken except in cases in which there is the clearest and fullest proof that it has, in the most unqualified sense of the term, been wilfully sacrificed by the accused. It must be proved beyond all reasonable doubt that Currell's "*peculiar temperament*" cannot be translated as his uncontrollable impulse, before the sheriff and the hangman have carried out the last scene in the drama of the convict's miserable existence. Both Mr. Davies, who was called to see the deceased woman shortly after the murder, and Dr. Burchell, who conducted the post-mortem examination, were censured by the judge: the former for neglecting to investigate the case more fully, and for hastily assuming that the wounds might have been occasioned by a fall; and the latter for having trusted to his memory for facts observed at the necropsy. In extenuation of Mr. Davies's mistake, we believe it may be urged that he was called from a case of labour that demanded his presence. Dr. Burchell's error was venial; nevertheless, it may be pointed out that no circumstances connected with an alleged murder are too trivial to be recorded at the time of observation. It is too much, however, to expect from a man engaged in busy general practice what may appropriately be demanded from an expert pathologist and professed medical jurist.

MUMPS AND PERIPHERAL NEURITIS.

MANY diseases not strictly speaking of nervous nature have now been found to be associated with peripheral neuritis. Phthisis, typhoid fever, diphtheria, and other febrile diseases are the best known of these. Mumps may be added to the list on the authority of M. Joffroy. The paralysis that occurred in Joffroy's case affected all four limbs. The legs, as usual, were first affected. Lancinating pains preceded the paralysis. The deep reflex actions were abolished. The muscles gave the reaction of degeneration when tested with the faradaic and voltaic currents. The muscles appeared to be increased in sensitiveness, for slight pressure caused pain. The paralysis was observed first three weeks after the onset of the mumps. Is it necessary to ask whether the case was one of true mumps? Mumps is certainly complicated and sometimes followed by cerebral paralysis. In M. Joffroy's case the paralysis endured for four months. Iodide of potassium was the medicament administered.

THE HYGIENE OF OCCUPATIONS.

THE hygiene of occupations has been attracting the attention of the State Board of Health of New Jersey, who have, as a preliminary to the study, set forth the general considerations involved in a paper by Dr. E. M. Hunt. He is followed by Dr. J. W. Stickler, who, after having dealt in detail with the various processes included in hat-making, finds that from the beginning, when the different furs are dealt with in the mixing and blowing room, to the end, when the finishers take up the manufacture, certain diseases, and especially affections of the respiratory organs, are liable to be induced. In fact, out of a total number of 722 hatters, the cause of whose death could be accurately determined, no less than 51·8 per cent. died of pulmonary phthisis, and 63·5 per cent. of some form of lung lesion. The next subject of work is that of silk, flax, and jute, which is taken up by Dr. W. K. Newton. As regards silk, he would strongly discourage weaving in dwelling-houses, where the loom or reel is often set up in an already overcrowded kitchen or living room; but he holds that if factories could be built and maintained so as to afford proper lighting, heating, and ventilation, the silk manufacture ought to be a healthful one. In the case of flax and jute, the hackling process, for which no satisfactory machine has been invented,

fills the air with dust made up of dirt and minute fibres, leading to paroxysms of coughing and often to early death. The spinning process charges the air in much the same way, the hair and clothing of the operatives being covered with the dust. Hemp and flax dressers inhale a dust that is peculiarly irritating, and the processes generally tend to destruction of the lung tissue in some form or other, and lead to a high mortality amongst the workers. Fans are stated but rarely to effect a proper change in the state of the air, and hence some form of air-filter over the mouth is recommended. In wet-spinning, the air, instead of containing dust, is loaded with moisture, which drops like a fine mist on the operatives, who are practically subjected to a vapour bath—an arrangement provocative of bronchial and other catarrhal affections, as also of rheumatism. The diseases occurring in the manufacture of rubber boots and shoes are considered by Dr. J. P. Davis. After a description of the processes of this trade, it is pointed out that the greatest danger attends the compounding process, in which a large quantity of white lead, litharge, &c., is mixed with the rubber or gum, lead-poisoning being especially frequent during moist hot seasons in summer, when the factory windows have to be kept carefully closed. The heat and want of ventilation are also very injurious. The other conditions leading to mischief are the introduction of naphtha into the cauldron of liquid; the machinery, with resulting accidents; and the fixing of the rubber when completed on to the heels and soles of the boots and shoes, the last being pressed against the pit of the stomach. It is to be hoped that the series commenced in this report will be extended to other trades.

GLASGOW UNIVERSITY CLUB, LONDON.

WE understand that the Marquis of Lothian, Secretary of State for Scotland, and Lord Watson, who was formerly the representative of Glasgow University in the House of Commons, will be the guests of this Club at their approaching dinner on April 29th (Graduation Day), when the chair will be taken by Professor Gairdner of Glasgow. The Club now consists of upwards of 100 members, and as it is constituted entirely with a view to such social meetings, and to maintaining in London the *esprit de corps* and associations connected with their *alma mater*, it seems probable that there may be many men in various walks of life who would desire to become members, but whose names have escaped the notice of the council. The inaugural dinner of the Club, at which Professor Sir W. Thomson presided, took place in October last, at the Holborn Restaurant. The honorary secretaries are Dr. Heron, 57, Harley-street, W., and Mr. McIlraith, 3, Furnival's-inn, W.C.

THE SANITARY STATE OF AVONMOUTH.

THERE is a stage in the history of towns and communities when their future prosperity is either made or marred, and in no respect is this more true than as regards their healthiness. For commercial and other reasons people begin to aggregate on sites which would not otherwise be selected as suited for the growth of towns; and where such sites have from the first been a primary care of the local sanitary authority, being at once supplied with adequate means of sewerage, water-supply, and other sanitary requisites, prosperous places and healthy communities have in the end resulted. Where the first beginnings of towns have been neglected, or, to a large extent, looked on with indifference, the reverse has been the case, and in the end such localities have either attained an unenviable notoriety for their unhealthiness, or it has taken many thousands of pounds to secure mere comparative healthiness in places where a few hundreds at the onset would have been far more successful. Avonmouth, not far from Bristol, is one of these growing towns; its docks are already attracting the favour of ocean steamers, a new dry dock is in contemplation, and about a thousand people are already established there. It has not been altogether neglected. Indeed, a system of sewerage has been established, and it would appear that modern building bye-laws are in operation there. But a system of sewers in a low-lying spot which does not take away the contents of large "rhines" of stagnant water, and which is so contrived that the lowest floors of houses cannot be adequately drained into it, is not such a system as is needed for a growing community. If there be one thing above another that is requisite in sewerage systems, it is that there should be a proper fall from the lowest floor of all dwellings to the sewer, and that the sewer should pass at a proper fall to its outlet. Neither of these essential requisites exists at Avonmouth, and hence, instead of this locality, which has grown up during a period of unexampled sanitary opportunities, being typical of that which is called for by modern health requirements, it is, in the words of Dr. Crossman, the local medical officer of health, the weakest point in his district. We have referred to the existence of building bye-laws in Avonmouth, but it is well known to those who are concerned in sanitary administration that such bye-laws lose their main power for good unless a surveyor is appointed to see to their enforcement; and no such appointment has been made for Avonmouth. There are doubtless other points in which the health requirements of this growing place call for attention, but we have only noted the great need for a proper system of sewerage and outfall, and for proper control over building operations, as types of that class of work which in all such places can ensure future healthiness if they are properly carried out at an early stage, whereas sickness and disease are sure to ensue sooner or later if they are neglected. There is no time like the present for initiating measures which are to influence the sanitary history of growing communities.

THE PRIVY COUNCIL AND THE MEDICAL ACT OF 1886.

THE *London Gazette* of April 1st contains an order of the Queen in Council declaring that on and after the first day of June, 1887, the second part of the Medical Act shall be deemed to apply to New Zealand.

THE ANATOMICAL SOCIETY.

As we announced some time since, steps are being taken towards the foundation of an Anatomical Society. It is proposed that the scope of the new Society shall be "Human and Comparative Anatomy, Embryology and Histology, so far as they bear upon Human Anatomy." The project is receiving influential support from authorities in England, Scotland, and Ireland. An inaugural meeting, at which Professor Humphry has consented to take the chair, will be held towards the end of the present month, at a place and time to be announced in due course. Mr. C. B. Lockwood, of 19, Upper Berkeley-street, W., is acting as hon. sec. *pro tem.*, and will be glad to give information to anyone who is interested in the movement.

REGISTRATION UNDER OLD DIPLOMAS.

THE uncertainty of the exact bearing of the Act of 1886 on the conditions of registration after the appointed day in June, and the opinion of the solicitor to the General Medical Council (see p. 747) thereanent, induce us to advise all persons entitled to registration on old qualifications to register without delay. One of the most probable consequences of the new Act will be to raise legal questions more likely to benefit the sister profession than our own.

THE HEALTH OF THE SPEAKER.

WE are glad to be able to announce that the health of the Right Honourable the Speaker of the House of Commons is progressing favourably. We learn that on Saturday, the 26th ult., after the repeated long sittings of the House, he was much exhausted, and on the following day he experienced a severe attack of cramp of the right leg, which was followed by swelling and tenderness in its middle and lower thirds, indicating some lymphatic disturbance. There is little doubt that the harass and anxiety inseparable from his official position have been much augmented by the recent disturbed condition of political affairs, and have been too great a strain upon his usual good health. The right hon. gentleman has been attended by Mr. G. W. Mackenzie, of William-street, Lowndes-square, and on Wednesday morning was sufficiently recovered to leave London for Sandy, his country residence in Bedfordshire. He has leave of absence until the middle of next week, when he is fully expected to be able to resume his Parliamentary duties.

TORTURING TURTLES.

IF it were not cruel—which it is, and hideously so—to bring over turtles in a dying state, it would be wantonly wasteful. We wonder that the aldermanic conscience—which is popularly believed to be located within the area of the gastric organ—has not long ago rebelled on behalf of the poor turtles thus tortured. Of course the animals ought to be either killed and packed in ice, or preserved in tanks. The turtle is not so common a stock-in-trade as to be necessarily "bulked" in carriage. The waste is large, and the quality of the meat is wofully deteriorated by the way it is tumbled about and mauled *en route*. If to these drawbacks we add that the sufferings inflicted on the creatures are terrible, it might be thought that the case for prudence and humanity was made out—but is it?

ABUSE OF MEDICAL CHARITY IN SCOTLAND.

A MEETING of medical practitioners was lately held in the Faculty Hall, Glasgow, Dr. James Morton, President of the Faculty, occupying the chair. He and various speakers descanted on the abuse of medical charities, both infirmaries and dispensaries. Dr. Macleod was especially emphatic in complaining that even well-to-do people came to the infirmary, and even as in-patients. "He had," he said, "some farmers in his wards, who farmed six or seven hundred acres of land. They would come up with lines from doctors recommending them. The medical profession was immensely at fault in this. They suffered greatly by these letters from doctors." We feel bound to reproduce these words, and hope to have some refutation of them from Scottish practitioners. Practitioners are well within their rights in representing to their consulting brethren the means of their patients, with the view of getting for them that consideration which the best consultants are ever ready to give. But infirmary beds are not meant for those who farm six or seven hundred acres. The Scotch boast, and properly, of their independence, but in all the literature of abused charity there is nothing worse than the accounts of abused medical charity in Scotland. Dr. John Brown in "Our Gideon Grays" quotes from the Appendix to the Report of the Board of Supervision the results of the inquiries of a voluntary association of medical men formed in Edinburgh, with the public-spirited Dr. Alison as chairman. The inquiry had reference to the remuneration of doctors among the paupers. One man attended 400 paupers for eight years and never received one farthing for his skill, time, or drugs. Another has the same story to tell of 350, some of them thirty miles off. He moderately calculates his direct loss from these calls on his time and purse at £70 a year. Verily, ours is a benevolent profession. But our benevolence, like that of Dr. Alison himself, has been overdone, and is bad for the public and the poor. A committee was appointed to consider and report on the best means of preventing abuse and overlapping of medical charity.

PERTH INFIRMARY.

IN the issue of THE LANCET for April 2nd it was stated that eight directors of the Perth Infirmary had resigned in consequence of the strained relations between the board of directors and the medical officers of the institution. It seems that the only strained relations existing were between Dr. Bramwell and the directors. The latter had deemed it wise to promote Dr. Bramwell to the consulting staff after nineteen years of service as a visiting surgeon. Dr. Bramwell did not wish to resign his position on the visiting staff, and at a meeting of subscribers his supporters passed a vote of censure, in consequence of which eight directors resigned. Another meeting of subscribers has since been held, at which the directors who had resigned were re-elected unconditionally by an overwhelming majority. The relations between Messrs. Christie, Stirling, Graham, Calder, and Hunt, the medical officers of the Perth Infirmary, and the directors have, we understand, always been of a most friendly nature.

"BRAIN."

ARRANGEMENTS have been made between the Council of the Neurological Society of London and the editorial committee and publishers of *Brain*, in virtue of which the journal has become the organ of the Society. The publishers, Messrs. Macmillan and Co., have undertaken the whole financial responsibility of the journal, which will henceforth be regularly sent free of charge to every member of the Society. The editor is Dr. de Watteville, who has fulfilled the post of acting editor for many years past. The next number of *Brain* forms the first part of the new tenth volume, and will contain Dr. Bastian's important paper on the Muscular Sense, with the discussion thereon.

DEATHS OF EMINENT FOREIGN MEDICAL AND SCIENTIFIC MEN.

THE deaths of the following foreign medical and scientific men are announced:—Don Manuel Rioz Pediaja, Professor of Chemical Analysis as applied to Medicine in the University of Madrid, who had held the offices of Dean of the College of Pharmacists and of Rector of the University. Dr. Gustav Kempner, *privat-docent* of Berlin. Dr. Julius Wolff, one of the medical officers of the Policlinic in Breslau. Dr. Jean Kickx, Professor of Botany and Director of the Botanic Gardens in Ghent.

VACCINATION AND DISTEMPER.

M. DUPUIS of Brussels has made a number of observations for the purpose of ascertaining the effect of vaccination on puppies, with special reference to its power of protecting them from the distemper. He found that it was quite possible to inoculate them with vaccine, but that it had no protective influence against distemper.

THE TREATMENT OF PHTHISIS BY ANILINE.

THE commission which was appointed by the second congress of Russian medical men at Moscow to examine the treatment of phthisis by aniline, as proposed by Professor Kremianski, has, after experimenting on a number of animals who were fatally affected by even small doses of aniline, and after some little trial in the wards, come to the

conclusion that aniline is not harmless to animal life, but on the contrary, very poisonous indeed, and that it also exerts no beneficial effect at all on phthisis.

FOREIGN UNIVERSITY INTELLIGENCE.

Basle.—Dr. Fehling, Director of the Stuttgart School for Midwives, has been appointed Professor of Midwifery.

Berlin.—Professor Karl Möbius of Kiel will take up the duties of the chair of Zoology after Easter.

Bordeaux.—M. Blarez (*agrégé*) has been appointed Professor of Chemistry.

Cracow.—Professor Hofmokl of Vienna has refused the invitation to Cracow on account of the wretched condition of the surgical clinic. The names of Drs. Rydygier and Obalinski are now mentioned in connexion with the vacant surgical chair.

Giessen.—Dr. Spangel, Director of the Town Museum of Natural History, has been appointed Professor of Zoology.

Helsingfors.—Dr. Holsti has been appointed Extraordinary Professor of Internal Pathology, and Dr. E. Sundvik Extraordinary Professor of Physiological Chemistry and Pharmacology.

Innsbruck.—Dr. Borysiekewicz of Vienna has been appointed Professor of Ophthalmology.

Lyons.—M. Laroyenne, who takes one of the gynæcological courses, has been appointed Professor-adjoint. M. Perroud, who takes one of the courses on children's diseases, has also been appointed Professor-adjoint.

Munich.—Dr. Karl Schloesser, Assistant in the Ophthalmic Clinic, has become *privat docent*.

Nancy.—M. Hergott (*agrégé*) has been appointed Professor of Midwifery. M. Spilmann (*agrégé*) has been appointed Professor of Clinical Medicine.

Rouen.—Professor Duménil has been appointed Director of the Preparatory School of Medicine.

Tomsk.—The Medical and Physico-Mathematical Faculties of this the new Siberian University are to be opened this year.

Toulouse.—M. Charpy has been appointed Professor of Anatomy, in succession to M. Bonamy, deceased.

Vienna.—Professor Max Gruber of Graz has been appointed Extraordinary Professor of Hygiene. It has been decided that the vacation courses are only to be open to foreign medical men in cases where the full number of the classes is not made up by Austrians. This may prove rather a serious matter for some of the English and Americans who frequent the Vienna Hospital for the short courses, for which it is famous.

Würzburg.—Dr. Matterstock has been selected by the Senate as successor to Professor Geigel, the recently deceased Professor of Medicine.

AT the Belgian Royal Academy of Medicine there has been a warm discussion for some time past on the subject of the State regulation of prostitution. M. Moeller, in support of his objections to the principle of regulation, attempted at a recent sitting to show by reference to English statistics that such regulation was not only useless, but actually hurtful. M. Crocq, however, from the very same statistics, proved that the cases of contagion in the British army were less numerous by one-half in the localities where the Contagious Diseases Acts were in force than in other garrison towns.

THE lectures at Gresham College, Basinghall-street, will be delivered by Dr. Symes Thompson on the 19th and three following days of the present month. The subject will be "The Blood." It is hoped that the course will be continued on Oct. 4th, 5th, 6th, and 7th.

ON the 4th inst. Mr. Ritchie received a deputation at the Local Government Board from eleven unions and boards of guardians, representing all the great military and naval centres, who urged that the law should be amended so as to enable them to detain in their infirmaries patients suffering from disease until cured. Mr. Ritchie, in reply to the representations of the deputation, said that he did not know whether Lord Devon's Act, which enabled the guardians to detain persons suffering from "contagious disease," could be applied to these cases; but he would obtain the opinion of the law officers of the Crown upon the point, and would communicate their opinion to the various boards of guardians.

THE captain of the ship *Belpore* of Liverpool, which arrived in the Tay from Calcutta on the 31st ult., reported to the Customs officers who boarded the vessel the deaths of two of the crew from cholera during the homeward passage. The vessel was moored at the quarantine station, and a thorough disinfection by the sanitary authorities was ordered previously to her coming into port.

THE Norwegian Government has taken another step towards discovering the origin and nature of leprosy, which is so common on the west coast of Norway, by despatching Dr. G. A. Hansen, director of the Leprosy Hospital at Bergen, to North America, for the purpose of inquiring into the heredity of the disease among Scandinavian emigrants to the United States.

DR. SINCLAIR COGHILL of Ventnor has been elected Vice-President of the International Medical Congress to be held at Washington on Sept. 5th proximo.

AT Braintree, in consequence of the extensive prevalence of measles in the town and neighbourhood, several of the schools have been closed.

THE trustees of St. Bartholomew's Hospital, Rochester, have declined to reopen the lock ward of that institution.

ROYAL COLLEGE OF PHYSICIANS.

A COMITIA of the Royal College of Physicians was held on Monday last, the 4th inst., the President, Sir W. Jenner, Bart., in the chair. There was a large attendance of Fellows.

A communication was read from the Colonial Office requesting information upon the contagiousness of leprosy. The subject was referred to a special committee consisting of Sir Risdon Bennett, Sir J. Fayrer, Dr. R. Liveing, and Dr. Stone.

It was resolved to erect a statue of the Queen in the new Examination Hall, in conjunction with the Royal College of Surgeons.

The adoption of the report of the Croonian Committee was moved by Dr. Quain, seconded by Sir E. Sieveking, and carried. The report, which was based on resolutions of the College passed on June 29th, 1886, recommended the following regulations:—"1. That the Croonian lecturer be appointed annually by the President and Censors for the purpose of delivering a course of not less than four lectures on subjects embraced in No. 1 of the above resolutions. 2. That the lecturer be paid 100 guineas for the lectures, and that the remainder of the Croonian Trust fund be employed for original investigation by a past or present Croonian lecturer. 3. That the lecturer, who must be a Fellow in accordance with the original trust, shall be eligible for reappointment. 4. That the subjects of the lectures and investigations be selected with the approval of the President and Censors. 5. That the lectures be delivered in the month of June, and that the first course of lectures be given in 1888."

The President then addressed the meeting upon the

affairs of the College during the past year, and gave an account of the career of the six Fellows who had died since the last annual meeting—viz., Drs. Wiltshire, Nairne, Farre, Chadwick, Moxon, and Carrington.

The election of President was then proceeded with, and the choice again fell upon Sir W. Jenner, who was formally inducted into the office by the Senior Censor.

MEDICAL REGISTRATION AND THE NEW ACT.

IN view of the possibility of some (perhaps many) who possess registrable qualifications not being aware of the full bearings on registration of the Medical Act (1886), a letter, of which the following is a copy, has been forwarded to all the medical licensing bodies in the United Kingdom:—

"Sir,—I am directed by the President of the Medical Council to forward to you, for the information of ————, the following statement, which has been prepared for him by the solicitor to the Council:—

"'After the 1st of June, 1887, no person can be put on the Medical Register by virtue of a single qualification, such as a diploma in surgery or a diploma or licence in medicine. Up to the 1st of June next any person can be put on the Register by virtue of such single qualification, and being once on, he may obtain additional qualifications by subsequent examinations, and such additional qualifications may be added to or substituted for those already on the Register. But after the 1st of June next no one can be put on the Register who has not passed the qualifying examination required by the Act of 1886—that is, an examination in medicine, surgery, and midwifery, and these three subjects must be taken up together; hence anyone who has now a single qualification, and intends to obtain further qualifications after the 1st June next, should take care to be on the Register before that day, for if he is not on it, his single qualification will not afterwards entitle him to registration.'

"As the subject is of importance to many persons who have not yet completed their medical education, you will doubtless think it desirable to give the statement such publicity as you may see fit, for the information of candidates for your examinations. "Yours faithfully,

"W. J. C. MILLER, Registrar.

"General Medical Council Office, 299, Oxford-street, London, W."

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Caxton and St. Neots Combination.—Mr. Poyntz Wright acts for two rural areas and one urban district. So far as he has had opportunity of judging the water-supply, he is of opinion that the wells are frequently contaminated with organic and sewage matter by reason of the dangerous proximity of privies and cesspools fouling the subsoil, and he points out the risks which such a system involves. He also advises the abolition of cesspool privies and their replacement by earth-closets or pail-closets. He also advocates in certain places cesspool drainage in safe positions, with an overflow into a water-course. This, we fear, is unsafe advice, involving as it does fresh pollution of streams, and absolute breach of Section 47 of the Public Health Act, in so far as the urban district is concerned which is named at the head of the chapter, if indeed this district was intended to be included. The St. Neots rural authority have, on Mr. Wright's suggestion, adopted a voluntary system of notification of disease, but the urban authority objected to carry out such a system, on the ground that the medical attendant on such cases rendered unnecessary, by his action, any interference on the part of the health officer. Such reasoning would, if carried to its proper extent, lead to the abolition of the clauses of the Public Health Act as to the prevention of infection in all cases where a doctor was called in; but this was certainly not the intention of the Legislature. Dealing in other chapters separately with each district, it appears that in St. Neots much well-water is dangerously circumstanced, and weekly scavenging is called for, together with improvement in closets and in dealing with slop-waters. In the Caxton rural district good water will soon be available for several places from water-works to be erected at Bourne. In the St. Neots rural district improvements have been made at Grafham as to water-supply, and at Eaton Socon the sewage irrigation answers well; but at Kimbolton a similar system would appear to have resulted in failure, owing to the land receiving more sewage than it can possibly take up.

Helmsley Rural District.—In the Helmsley division of this union the population is 3961, and it had in 1886 a death-rate of 12·1 per 1000. There was no scarlet fever or measles during the year, and only 3 cases of enteric fever came under notice. The history given as to these by Dr. Bruce Low shows how carefully each such occurrence is investigated with a view to preventive action. It is somewhat curious that 61 cases of diarrhœa occurred at Pockley in this district; the details were sent to Dr. Ballard in connexion with his official inquiry into diarrhœa prevalences. The general immunity of this district from dangerous infection may perhaps induce the authority to postpone providing the means of isolation and disinfection which Dr. Low advocates, but it is precisely during the absence of emergencies that these matters should be dealt with. It is satisfactory to record a marked diminution in illegitimate births and in deaths amongst such children, especial attention having been devoted to this subject in the district, and wide publicity having been given to the evils and cruelties heretofore attendant on illegitimacy. Questions of overcrowding, water-supply, and other matters are dealt with as they rise.

Clitheroe Urban District.—The birth-rate for this district in 1886 was 28·8 per 1000, the death-rate 17, and the zymotic rate 1·5. The current work of the year included the gradual removal of open midden-privies, 170 having been abolished in favour of the tub system. Action is also being taken towards securing the slaughtering of animals in wholesome places, and in certain instances any further slaughtering in existing places was prohibited. It is also stated that at the present time there are but few instances in which there is any direct communication between houses and drains in the Clitheroe district. In the Low Moor district matters are by no means so satisfactory; and whereas in Clitheroe reduction of mortality is shown, no such diminution is observable in the Low Moor. In the former, for example, the infantile death-rate is distinctly less than in the latter. Mr. J. J. Fraser also shows that where sanitary improvements have been effected infectious diseases have diminished.

St. Asaph Rural District.—With a death-rate of 18·0 per 1000, Dr. Lloyd-Roberts is of opinion that deaths are not excessive; but whilst there may not be much to complain of, there is, in our opinion, still room for improvement in this respect in such a district. Diphtheria has often been a perplexing disease in this portion of North Wales, and it was last year scattered through six parishes in this rural district. In St. Asaph itself infection is conveyed from the upper to the lower parts of the city by the river Elwy, which acts as a source of water-supply for the latter area. But we read, as regards the district generally, that no new public works for sewering or water-supply have been undertaken. At Prestatyn such works are imperatively called for, the district being one which bids fair to become a growing watering-place.

Poole Urban District.—In this district the death-rate for 1886 was 18·13 per 1000. Early in the year small-pox called for energetic action, and, owing largely to the available hospital accommodation, the disease was checked. Out of 21 cases 3 were unvaccinated, and of these 2 died; whereas no case occurred in a revaccinated person. Mr. Lawton reports that he has maintained systematic inspection of the district, and he shows how such matters as scavenging and water-supply have been supervised, and how slaughter-houses, common lodging-houses, and bakeries, &c., are controlled.

VACCINATION is, it is stated, to be enforced among all the workmen employed on the coming Paris Exhibition. Each man will be vaccinated as soon as engaged, and the Government will not only pay for the necessary medical treatment, but will continue the man's wages should his arm become bad and prevent him from working.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In twenty-eight of the largest English towns 6022 births and 3831 deaths were registered during the week ending April 2nd. The annual rate of mortality in these towns, which had increased in the preceding seven weeks from 19·5 to 23·5 per 1000, declined again last week to 21·6. During the thirteen weeks of the first quarter of this year the death-rate in these towns averaged 20·0 per 1000, and was 2·2 below the mean rate in the corresponding periods of the ten years 1877-86. The lowest rates in these towns last week were 14·6 in Brighton, 17·2 in Bradford, 18·8 in Birmingham, and 19·3 in Portsmouth. The rates in the other towns ranged upwards to 28·7 in Manchester, 30·7 in Huddersfield, 32·5 in Plymouth, and 33·1 in Blackburn. The deaths referred to the principal zymotic diseases in the twenty-eight towns, which had increased in the preceding seven weeks from 340 to 465, further rose last week to 471; they included 239 from measles, 105 from whooping-cough, 37 from scarlet fever, 32 from diphtheria, 32 from diarrhœa, 25 from "fever" (principally enteric), and only 1 from small-pox. These zymotic diseases caused the lowest death-rates last week in Birkenhead and Bolton; and the highest rates in Oldham, Sunderland, and Huddersfield. The greatest mortality from measles occurred in Sheffield, Cardiff, Liverpool, Newcastle-upon-Tyne, Bristol, Oldham, Manchester, Huddersfield, and Sunderland; and from whooping-cough in Bristol, Huddersfield, and Blackburn. Of the 32 deaths from diphtheria in the twenty-eight towns, 14 occurred in London, 4 in Liverpool, 3 in Bristol, 3 in Oldham, 2 in Plymouth, 2 in Birmingham, and 2 in Manchester. Small-pox caused one death in Portsmouth, but not one either in Greater London or in any of the twenty-six other large provincial towns. Only 2 cases of small-pox were under treatment on Saturday last in the metropolitan hospitals receiving cases of this disease. The deaths referred to diseases of the respiratory organs in London, which had been 433, 474, and 509 in the preceding three weeks, declined again last week to 417, and were 127 below the corrected average. The causes of 107, or 2·8 per cent., of the deaths in the twenty-eight towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Wolverhampton, and Huddersfield. The largest proportions of uncertified deaths were registered in Oldham, Salford, Sheffield, and Halifax.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 26·2 and 25·9 per 1000 in the preceding two weeks, further declined to 23·5 in the week ending April 2nd; this rate exceeded, however, by 1·9 the mean rate in the same week in the twenty-eight large English towns. The rates in the Scotch towns last week ranged from 11·5 and 18·5 in Leith and Greenock to 28·2 in Paisley and 31·5 in Aberdeen. The 588 deaths in the eight towns last week showed a further decline of 58 from the numbers in the previous week, and included 43 which were referred to measles, 31 to whooping-cough, 18 to diarrhœa, 8 to diphtheria, 6 to scarlet fever, 5 to "fever" (typhus, enteric, or simple), and not one to small-pox; in all, 111 deaths resulted from these principal zymotic diseases, against numbers increasing from 98 to 127 in the previous four weeks. These 111 deaths were equal to an annual rate of 4·4 per 1000, which exceeded by 1·7 the mean rate from the same diseases in the twenty-eight English towns. The fatal cases of measles, which had increased in the preceding four weeks from 27 to 55, declined last week to 43, of which 34 occurred in Aberdeen and 8 in Glasgow. The 31 deaths from whooping-cough corresponded with the number in the previous week, and included 12 in Glasgow, 11 in Edinburgh, and 5 in Dundee. The 18 deaths attributed to diarrhœa showed a further increase upon recent weekly numbers; 10 were returned in Glasgow and 4 in Dundee. The 8 deaths from diphtheria included 3 in Glasgow, 3 in Edinburgh, and 2 in Paisley. The 6 fatal cases of scarlet fever, of which 3 occurred in Glasgow and 2 in Edinburgh, showed a decline of 12 from the number in the previous week. The 5 deaths referred to "fever," an increase of 2 upon the low number in the previous week, included 2 in Glasgow and 2 in Edinburgh. The deaths from acute diseases of the respiratory organs in the eight towns, which had been 152 and 146 in the preceding two weeks, further declined last week to 132, and were 2 below the number in the corresponding week of last year. The causes of 67, or 11 per cent., of the deaths registered in the eight towns during the week were not certified.

HEALTH OF DUBLIN.

The rate of mortality in Dublin, which had been 29·3 and 31·3 per 1000 in the preceding two weeks, was again 31·3 in the week ending April 2nd. During the thirteen weeks ending last Saturday the death-rate in the city averaged 30·9 per 1000, the mean rate during the same period being but 20·7 in London and 21·6 in Edinburgh. The 212 deaths in Dublin last week corresponded with the number in the previous week; they included 6 which were referred to "fever" (typhus, enteric, or simple), 4 to measles, 4 to scarlet fever, 3 to whooping-cough, 1 to diarrhœa, and not one either to small-pox or diphtheria. Thus the deaths from these principal zymotic diseases, which had been 10, 7, and 18 in the preceding three weeks, were again 18 last week; they were equal to an annual rate of 2·7 per 1000, the rates from the same diseases being 2·0 in London and 3·8 in Edinburgh. The deaths referred to "fever" exceeded the number in any recent week, while those from scarlet fever showed a decline of 3 from the number in the previous week; the fatal cases of measles and whooping-cough corresponded with the number in the previous week. The deaths of infants exceeded the number in either of the previous two weeks; while those of elderly persons showed a decline. Four inquest cases and 5 deaths from violence were registered; and 69, or nearly a third, of the deaths occurred in public institutions. The causes of 29, or nearly 14 per cent., of the deaths registered during the week were not certified.

THE SERVICES.

MEDICAL REGULATIONS.

ALTERATIONS in and additions to the Regulations for the Army Medical Department have been approved, and will be issued to those concerned.

A Greenwich Hospital Pension of £50 a year for Fleet and Staff Surgeons has fallen vacant by the death of Retired Fleet Surgeon Gerald Yeo, F.R.L.S., who had been a recipient of the same since May 21st, 1881.

WAR OFFICE.—Army Medical Staff: Brigade Surgeon Wm. Alex. Gardiner is granted retired pay, with the honorary rank of Deputy Surgeon-General (dated April 2nd, 1887).

ADMIRALTY.—In accordance with the provisions of Her Majesty's Order in Council of April 1st, 1881, Inspector-General of Hospitals and Fleets Dugald McEwan, M.D., has been placed on the Retired List.

In accordance with the provisions of Her Majesty's Order in Council of March 25th, 1887, Deputy Inspector-General of Hospitals and Fleets William Henry Sloggett has been granted the honorary rank of Inspector-General of Hospitals and Fleets, in recognition of his services as Inspector of Certified Hospitals (dated March 25th, 1887).

The undermentioned Surgeons have been promoted to the rank of Staff Surgeon in Her Majesty's Fleet:—Herbert Elliott Marsh; Henry George Travers Strickland, M.B.; Alfred Patterson; Michael Ronan, B.A.; John Anderson McAdam; John Dudley, M.B.; and David Brownrigg Bookey.

The following appointments have been made:—Staff Surgeon J. A. McAdam, to the *Penguin* (reappointed on promotion); and Surgeon William George Jack, to the *Forward* when recommissioned, and until then additional.

ARTILLERY VOLUNTEERS.—2nd Durham (Seaham): Surgeon T. C. Beatty, jun., resigns his commission (dated April 2nd, 1887).—Luke Gerald Dillon, M.D., to be Acting Surgeon (dated April 22nd, 1887).

ENGINEER VOLUNTEERS.—2nd Cheshire: Jas. Atkinson, Gent., to be Surgeon (dated April 1st, 1887).

RIFLE VOLUNTEERS.—4th Lancashire: Surgeon and Honorary Surgeon-Major E. H. Roe resigns his commission; also is permitted to retain his rank and to continue to wear the uniform of the corps on his retirement (dated April 2nd, 1887).—1st Linlithgowshire: John Anderson, M.B., to be Acting Surgeon (dated April 2nd, 1887).—1st London (City of London Rifle Volunteer Brigade): Surgeon J. J. Gawith resigns his commission (dated April 2nd, 1887); Acting

Surgeon H. F. Stokes to be appointed Surgeon (dated April 2nd, 1887).—22nd Middlesex (Central London Rangers): Surgeon J. R. Kemp resigns his commission (dated April 2nd, 1887).

Correspondence.

"Audi alteram partem."

THE TREATMENT OF PLACENTA PRÆVIA.

To the Editors of THE LANCET.

SIRS,—I suppose, strictly speaking, that no particular method of managing placenta prævia can claim being *the treatment*, because the conditions which present themselves when we are called to these cases vary very much, and to each variety there is a more appropriate treatment. Besides the two positions of the surroundings I mentioned in my last letter—namely, where we are called without previous knowledge, and secondly, where we have already ascertained the existence of placenta prævia,—there are three main classes:—

1. If the os uteri be well dilated, the placenta extending but a little over the os, and consequently the membranes plainly felt, the rupture of the membranes is the first thing to be done. If turning has been determined upon, then this will be performed at the same time; otherwise we might wait for the natural forces. Should these hesitate, or hæmorrhage continue, ergot, forceps, or version should be employed, according to circumstances. There will be no reason to detach the lower portion of the placenta.

2. Should the placenta, however, be attached nearly or entirely athwart the os uteri, then the detachment of the placenta as far as the fingers can easily reach will have a twofold effect: it will relieve the os from the restriction the adhesion of the placenta caused, and permit consequently its expansion; and it will also for a certain period generally check the bleeding, but not always; sometimes there is a very sharp loss; then the quickest and surest plan is to turn at once and plug the os by the leg or breech; the bleeding then stops, and pains generally arrive in a short period. If, after this separation of the lower portion of the placenta, no bleeding arise, and if we can remain about the patient, the natural forces might be trusted to deliver the patient; should, however, these hesitate, we might elect two plans—either to dilate the os with Barnes' bags, and when the os is large enough to apply the forceps to the head to bring this into the os, or turn and bring the breech into the same position. In either case labour pains usually soon come on. We should keep on the forceps, however, to assist, if needful, till the head is clear. But if, on the contrary, we have neither bags nor forceps at hand, then version by my method gives the patient security.

3. But supposing the os uteri is small, the bleeding severe, and, called on suddenly, we are unable to obtain either dilating bags nor forceps, also unable to leave the patient till delivered: then it is (now that the tampon is for ever, I hope, discarded), even though the os would admit only one or two fingers, that my plan of turning becomes the security of the patient, and being the only treatment possible, and of the most secure kind, it does practically become *the* treatment.

In the second class of cases, when the employment of version becomes necessary from the continuance of hæmorrhage, and both dilators and forceps are absent, and the os being not dilated sufficiently to admit the hand, then my plan of turning becomes *the* treatment, and the patient's security, and, except the *accouchement forcée*, the only security; and these cases, coupled with the third class, form by far the largest number in every-day practice. But the full recognition of the rule for as early a delivery as possible in cases of placenta prævia brings out the advantage which the capability of early version given us by the combined or bipolar method, advancing treatment a considerable stage earlier; and when other methods are not to hand, as I pointed out in 1863-4 in my remarks on Dr. Greenhalgh's paper, and in my work on Combined Turning, there is one advantage in this form of version, that soon after the leg is brought through the os uteri labour pains generally occur, giving time enough for the patient to rally and an early release of the medical attendant. Dr. Lomer points out the ease with which his assistants learnt it, and he thinks they represent very well the average in the profession, the cases reported having been done principally by them. Still, without classifying the employment of version as a routine, practice gives results at present of the most favourable kind. In the conclusion of an unavoidably egotistical letter, I would again urge those engaged in midwifery, while employing all the modern methods of help suitable to each case, to remember the rule, "Deliver as early as possible after the recognition that the placenta is about or athwart the mouth of the womb"; and to this I would add, "Don't leave the patient till she is delivered." As the result of my experience, I have often remarked I would rather handle a case of placenta prævia than one of post-partum hæmorrhage.

I am, Sirs, yours truly,

J. BRAXTON HICKS.

George-street, Hanover-square, April 3rd, 1887.

PASTEUR'S "METHODS."

To the Editors of THE LANCET.

SIRS,—Your issue of Feb. 5th contains a letter by Dr. John H. Clarke, in which he says, "At any rate, the facts should be made known without delay, in order, on the one hand, to remove suspicion from M. Pasteur's treatment, or, on the other hand, to warn possible applicants against the risk it involves." This warning does not come a moment too soon. I have been rather surprised that, in the face of von Frisch's experiments and M. Peter's experiences, THE LANCET has not thought it advisable to warn the profession of the possible dangers of the latest phase of M. Pasteur's treatment—the intensive method. Certain of M. Pasteur's French supporters—especially M. Grancher—are still triumphantly appealing to the formidable list of "cases of cure." But not only is the treatment in those cases founded on a fallacious basis, but it has been abandoned, and, so far as we have particulars, it has been distinctly confuted by crucial experimental test. M. Pasteur has at last been driven to admit the force of an objection, which he should have recognised before committing himself to the treatment of human beings after they were supposed to have been inoculated with rabic virus. This is what he says: "The objection can be brought against the usual protective inoculation of man after a bite, which is based upon the inoculation of dogs before the bite, that the immunity of animals after infection with rabies poison has not been certainly established. To confute this charge it is necessary to make dogs immune after trephining and the intra-cranial inoculation of street rabies. ..... My first experiments on this point took place in August, 1885. The result was a partial success. In the course of the last month I took up these experiments as soon as my duties allowed me time. *The condition of success is this: that the inoculation should begin soon after the infection—i.e., the same day;* that one must proceed with such extraordinary rapidity that the series of *medullæ oblongatæ* made use of may be employed in twenty-four or less hours, and that this treatment must be repeated once or twice every two hours. That Dr. v. Frisch was not successful in similar experiments is to be ascribed to the slow inoculation he employed." I will not now stop to consider whether M. Pasteur does not stand condemned out of his own mouth. As von Frisch has repeated the experiments by the new method, and declares that the procedure is not only *not* successful but possibly dangerous, and as, moreover, M. Pasteur has declared otherwise and admits the transcendent importance of the test, let that point be authoritatively and finally settled. Any appeal to the "cases" in view of M. Pasteur's utterance, to the effect that the condition of success is that the inoculations should be commenced the same day as infection, and with such extraordinary rapidity, is simply idle, as in none of them was that condition observed. Let varying quantities of saliva—diluted if necessary—taken from a rabid dog be injected into healthy ones, and let M. Pasteur operate in half the cases, the other half being reserved as controls; and let this experiment he repeated as often as necessary. M. Pasteur must stand or fall by this test. What, may I ask, would have been the fate of M. Pasteur's method had one of the fatal cases been his first instead of Joseph Meister? Should we have heard any more of it? I imagine not. Unfortunately, the twelve inoculations (six of which were done with subsequently

proved innocuous material) accomplished then what thirty-six do not succeed in doing now, and the reputation of the method was established! But, *mirabile dictu*, that very perfect, ever-successful, though unstable method has now been abandoned for a new one. "The three little inoculations" at any time before the occurrence of hydrophobia became twelve within thirty-five days of the bite, reduced suddenly to fifteen days; though the non-fatal cases were all the time vauntingly held up as examples of the success of the treatment. Now we have the latest shift, which affects not only the number of inoculations, but the very intensity of the material itself, and which, according to M. Pasteur's experimental "conditions of success," actually reduces the time to *the day of infection*. Bearing in mind the manner in which the method has undergone so many modifications with a never-failing claim to success, we are brought face to face with the fact that we must accept one or other of the following two conclusions:—(1) That there are degrees of infection, that each method operated efficiently in preventing rabies, and that there was a marvellous adaptability between the degree of infection and the method adopted in each case; or (2) that in the rare cases in which infection occurred the inutility of the particular method had recourse to was demonstrated, and a change of method was accordingly adopted. Which, may I ask, is the more reasonable conclusion? It is pitiable to see the intolerance with which M. Peter's efforts to lay bear the truth are met by M. Pasteur's partisans; but the time will surely come when he will make himself heard not only within the walls of the Académie de Médecine, but in every corner of the earth where M. Pasteur's fame has reached.

I am, Sirs, yours faithfully,

Gealundo, March 1st, 1887. VINCENT RICHARDS.

THE CASE OF LENNARD *v.* BROWN AND ALLATT.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of the 5th ult. there was a leading article dealing sympathetically with the case of Lennard *v.* Brown and Allatt, in which an attempt was made to prove adultery against a medical co-respondent. This attempt broke down entirely, and Mr. Brown was absolutely exonerated alike by the summing-up of the judge and by the verdict of the jury. The petitioner has no means of paying the costs which Mr. Brown has incurred in defending himself, and these amount to the sum of £160 18*s.* 11*d.* We think the case is one in which other practitioners may be fairly asked to assist Mr. Brown in bearing the expenses which have thus been forced upon him. But he felt it to be a duty to resist the attempt, to which any other member of the profession might be exposed, and in thus deciding he was fighting the battle of the profession as much as his own. We trust that you will render us your valuable assistance in bringing forward this aspect of the case, and that you will be induced to take charge of any fund which may be raised for the purpose indicated.

We are, Sirs, yours truly,

ROBERT BARNES,
SYDNEY JONES,
W. H. BROADBENT.

April, 1887.

*** We understand that Dr. Murray, of Meadowside, Upper Richmond-road, Putney, has expressed his willingness to receive subscriptions towards a fund for the purpose intimated in the above letter.—ED. L.

"A VICTIM OF THE LAW."

To the Editors of THE LANCET.

SIRS,—The letter which appeared in THE LANCET of March 19th with the above signature discloses a case which seems to me to call for some practical sympathy from members of our profession. The writer tells us that, in compliance with a magistrate's order (which, I presume, he was bound to obey), he examined and certified to the insanity of a patient who, in consequence of his certificate, was consigned to a lunatic asylum. On regaining her liberty, she brought an action against the medical man who signed the certificate; and though the verdict was given in his favour, he is now called upon to pay costs to the sum of £240, the plaintiff professing herself a pauper. In our ill-paid profession few can, without serious inconvenience, if not actual hardship, bear such a strain on their resources; and if you, Sirs, would open a subscription list for the unfortunate "victim," whose name is, I presume, known to you, I feel sure that many of his professional brethren who have happily escaped such vexatious actions themselves will show their thankfulness by helping to indemnify him for his pecuniary loss. In "mind and body" he has doubtless suffered much; it should be the care of his brother practitioners that he does not suffer in "estate" also.

I am, Sirs, yours truly,

Petersfield, March 28th, 1887. A. W. LEACHMAN, M.D.

*** At the moment of going to press, we learn that the Metropolitan Counties Branch of the British Medical Association have opened a subscription list for the object mentioned above, and that donations towards the fund may be forwarded to Mr. George Eastes, M.B., 69, Connaught-street, Hyde Park. The amount given or promised has already reached nearly £40. We need scarcely say that the movement has our hearty sympathy.—ED. L.

THE DRAINAGE OF THE MONTE CARLO CASINO.

(From our Special Correspondent.)

IN a previous letter the condition of the sewers of Monaco was described and criticised, but tourists are more interested in the drainage of the Casino than of this antique town. Most visitors live in the district of Monte Carlo or of the Condamine. There is only one very small and modest hotel available at Monaco. Tourists go up to Monaco to see the Palace, the small museum, the quaint streets of the old town, and the very beautiful garden at the extremity of the rock. To the naturalist this garden is interesting as a contrast to the Casino gardens, situated on the opposite hill of Monte Carlo, for they contain no foreign plants, but a luxurious collection of indigenous flowers and shrubs. Nevertheless, all this may be seen in a couple of hours. The case is very different with regard to the Casino. Even those who do not play spend every day many hours within the walls of this magnificent building. The admission is absolutely free, and there are concerts twice a day, given by one of the best orchestras in Europe. The theatre, built by Garnier, the architect of the Paris Grand Opera, is in itself a sight which would attract thousands of people, even without the concerts and theatrical representations. Then there is a reading-room, with more than a hundred periodicals in all languages; and the Atrium, a magnificent hall, where people walk up and down for hours together, talking to their friends; the Atrium is, in fact, the universal rendezvous, where half the gossiping of Monte Carlo takes place.

These explanations are necessary to show that the sanitary condition of the Casino must have an important influence on the health of those persons who spend any time in the Principality. It so happens, however, that though money has been lavished on this superb building and no pains have been spared to render it attractive, the usual continental ignorance with regard to sanitary matters has very considerably marred the general result. The organisation of the drainage has been left to mere hazard, and the same may be said with respect to ventilation. There are eight closets for the use of the public in the basement of the Atrium, placed back to back and separated by a narrow passage. Formerly a small metallic pail or *tinette* was placed under each closet, which only retained the solid materials; and, incredible as it may seem, the liquid contents were actually allowed to overflow on the floor of the passage. The floor being slightly concave, the sewage, of a very offensive and concentrated description, slowly trickled to the centre, thus converting the passage into an open drain gravitating towards a little sewer. Of course, the smell from this passage occasionally invaded the whole building. This is now, however, altered. The *tinette* system is abolished. English closets, draining into hardware pipes, are employed in their stead. The flush is insufficient and badly delivered, but still the closets are free from odour, and the passage is no longer a standing nuisance. Here the improvements end. Immediately outside and almost touching the wall of the Casino

an immense cesspool has been constructed. As the law of the Principality forbids the draining of closets into the sewers, it may be thought that the building of a cesspool was unavoidable; but a special enactment was obtained from the Government exempting the Casino from this rule. Unfortunately the only use made of this advantage has caused more harm than good; for not only has the obnoxious cesspool system been maintained, but, availing themselves of their special privilege, the Casino authorities have allowed an overflow pipe to be added. Thus, after the accumulation of several cubic yards of sewage—that is to say, when the sewage has had plenty of time to ferment and to attain its foulest and most dangerous condition—it reaches the level of the overflow pipe and escapes into the sewers. Of course the smallest quantity of sewage in such a state gives rise to great nuisance, particularly as the sewers at Monte Carlo are not systematically flushed or ventilated. It is extraordinary that in the nineteenth century such obvious errors should be committed. The Casino is so close to the sea and the sewer outfall that, though the sewers are not properly constructed, no great harm would have arisen if the building drained direct into them, particularly, as with the new English closets, a considerable volume of water is now employed. But to allow the sewage to accumulate, to ferment, and then permit its slow but continuous flow into the sewers, is simply to poison the whole neighbourhood. Far from the Casino, and on higher ground, the sewer mouths have given off odours which have surprised persons not acquainted with these details. Evidently the cesspool must be abolished altogether, or else the overflow must be carefully closed and the cesspool periodically emptied, like all the other contrivances of this description within the Principality.

Apart from this, during the present season and for many weeks the most appalling odours have prevailed throughout the Casino, especially in the reading-room and in the theatre. One waterspout running outside a wall was discovered and pulled down. It communicated with the sewer, and, being in a leaky condition, enabled foul gases to travel upwards into the wall. A new pipe has been substituted, which is made to empty over an open gully, and thus the connexion with the sewer is effectively severed. This is one of the very rare instances of an improvement accomplished which is scientifically correct. But there are other defects that have not been discovered, and the constant escape of sewer-air within the Casino is all the more dangerous as the building itself is completely devoid of any system of ventilation. The air depends for its renewal on the hazard of opening doors or windows. There are a great number of "lanterns" on the roofs of the gaming-rooms, but these are so low that when opened a violent down-draught ensues. Consequently they are nearly always shut, and intolerable heat and closeness result. Undoubtedly the excitement of gambling is most injurious to the health; but when combined with the respiration of foul air, contaminated by the breath of thousands of people, by the emanations from badly-constructed drains, and the burning of hundreds of lights, the result is even more disastrous. As Monte Carlo is not only of itself one of the best health-resorts on the Riviera, but is easily and constantly visited by invalids from Cannes, Mentone, Nice, &c., these considerations are of great importance. The public have at least the right to expect that the wealthy owners of the Casino will try to provide pure air for the three or four hundred thousand visitors who each year are tempted to try their fortunes at the *roulette* or *trente et quarante* tables. In this case it is not so much a matter of expense as of knowledge. The directors of the Casino do not know what to do. They are not men of science, and the persons in their employ are men of art and men of business who have never had any opportunity of learning anything about sanitation. Thus more money has been spent in building what has proved to be the cause of nuisance and of danger to health than it would have cost to construct drains correctly laid, ventilated, trapped, and intercepted. But this excuse does not deprive the public of the right to protest; and, as yearly the climatic advantage of Monte Carlo as a health-resort is better appreciated, both by physicians and by patients, it becomes a duty to point out these defects. Moreover, there is every reason to feel the utmost confidence that the directors of the Casino would make considerable alterations if they were certain that the desired improvements could be secured. It would be difficult to find in all Europe a building where, during the course of the year, so great a number of people congregate and remain for so many hours within its walls. But this season many persons have been positively driven away by the bad smells; and, if for no higher motive, self-interest points to the necessity of better ventilation and better drainage. Enough has been done for outward show and outward attractions; care must now be taken that, in contemplating the fine paintings, decorations, and architectural beauties of the Casino, or in listening to its unrivalled orchestra, the visitor shall no longer be inconvenienced by impure air and insufficient ventilation. Indispensable improvements of this description, there is little reason to doubt, will be attempted at no distant date. The directors have discussed these matters on several occasions. Many projects have been submitted to them, and it is to be hoped that they will soon have succeeded in selecting a good working plan. In that event it will be a pleasure to notice favourably that which, at present, and in the public interest, it is necessary to criticise somewhat severely.

LIVERPOOL.

(*From our own Correspondent.*)

THE NORTHERN HOSPITAL AMBULANCE.

SOME idea of the great value of a well-organised ambulance service in such a city as this is shown in the account given of one day's work done by the ambulance of the Northern Hospital. On the 28th ult. there were removed to the hospital the following cases:—1. A sailor, suffering from scalp wounds, concussion of the brain, and compound fracture of the leg. 2. A carter, who had sustained a scalp wound and concussion of the brain. 3. A man, seventy-two years of age, with a fracture of the thigh. 4. A stableman, who had been thrown from a trap, and had sustained a scalp wound with concussion of the brain. A well-appointed horse ambulance must soon become a necessary adjunct to every large general hospital in town or country.

RECENT LOCAL HOSPITAL CHANGES.

Dr. Bradshaw has been elected Physician to the Stanley Hospital. Dr. Edis, Hon. Assistant Physician to the Hospital for Women, has been elected Honorary Medical Officer for In-patients; and Drs. Bernstein and Crozier have been elected Honorary District Medical Officers to Districts 4 and 9 of the Ladies' Charity and Lying-in Hospital.

OVERCROWDING IN THE LIVERPOOL WORKHOUSE.

For some time past the Liverpool Workhouse, though of considerable dimensions, and probably one of the largest institutions of the kind in the kingdom, has been found to be inadequate to meet all the demands made upon it. When it is borne in mind that the greater part of the buildings were erected many years ago, this will not appear surprising. Steps are being taken to remedy the overcrowding which exists, but nothing can be done till after the report of the Local Government Board inspector.

PREVALENCE OF MEASLES.

At the meeting of the Health Committee on the 31st ult., the medical officer of health reported that there had been during the week 9 cases of fever, 31 of scarlatina, and 171 of measles. He regretted to say that the latter was on the increase; there had been 33 deaths from it since the previous week, representing 10 per cent. of the total deaths, while it was the largest number of deaths from measles in a single week that he had known for a great number of years. In one school in Toxteth Park there were no fewer than fifty children absent on account of it. The committee had no power to close the schools except with the consent of the managers, and there was no hospital accommodation whatever.

LIVERPOOL FOUNDLING HOSPITAL.

The first report of the Liverpool Foundling Hospital has recently been published. Its object is the double one of affording to women who have fallen *once only* an opportunity of regaining respectability, and of providing a home for the children of such women. Besides receiving infant children, the hospital contains wards for the confinement of unmarried women, *eligible under the rule of previous good behaviour*, who are thus enabled to return to a respectable life, leaving the child in the hospital. The institution has been at work for about nine months. Eight infants have been admitted; and two, whose mothers have since gone back into domestic service, have been born in the hospital.

DUBLIN.

(From our own Correspondent.)

THE QUEEN'S JUBILEE.

At a recent meeting of the Executive Committee of the City and County of Dublin Jubilee Committee, it was resolved unanimously that a hospital for consumption and diseases of the chest would be a memorial most likely to receive support from the public, the hospital to be in the county of Dublin. Various other suggestions had been started, but the foundation of a hospital for chest affections was considered the most desirable project in celebration of Her Majesty's Jubilee. Accordingly a meeting of the Celebration Committee was held last week, under the presidency of the High Sheriff of the county, and after some discussion the resolution above referred to was adopted by 23 to 14. It has been stated that Dublin is over-hospitalled, and that it would be better to utilise the money collected by establishing Jubilee wards in the present existing hospitals. There are, however, in my opinion, many and valid objections to this proposal, while, on the other hand, the erection of a special institution for chest affections at Killiney, a sheltered and salubrious locality on the coast about ten miles distant from the city, is one which may be expected to meet with much greater approval. General hospitals are not the places for consumptive patients, and in advanced stages of the malady not only are those institutions unsuitable to the patients, but they are a constant source of annoyance to the other inmates of the wards. It must also be remembered that these patients occupy beds which might with greater advantage be tenanted by sufferers from more curable maladies. This view of the matter has been adopted for some years by the authorities of the Belfast Royal Hospital; and, as a result, for some time before the foundation of the Hospital for Consumption,[1] patients in the advanced stages of the disease were refused admission into the wards of the only general hospital in that large and populous town. I do not intend to discuss the cost of the proposed institution, but shall merely refer now to the absolute necessity of such a hospital as is now proposed to be established. The Registrar-General for Ireland has pointed out that one-tenth of all the deaths in Ireland are caused by consumption, and one-sixth by diseases of the respiratory organs other than phthisis; while in Dublin the mortality is relatively higher. It is sincerely to be hoped that a substantial sum may be obtained for the erection and endowment of a hospital of the kind, which would be the most fitting Jubilee gift that could be offered by Her Majesty's loyal subjects in this country.

RICHMOND DISTRICT LUNATIC ASYLUM.

In last week's issue I referred to the insanitary condition of this asylum, and in consequence of the report of the resident medical superintendent the governors held a meeting last week, when it was determined to hold an inquiry into the defects to which attention had been directed. I am informed that Sir Charles Cameron, medical officer of health and city analyst for Dublin, and Mr. Wilkinson have been engaged to investigate the matter, and any suggestions made will at once be carried out.

NATIONAL EYE AND EAR INFIRMARY, DUBLIN.

In the Dispensary for Diseases of the Throat, which was established about three years since as an adjunct to the ear department, 124 new cases were treated during the past year, and of these a large proportion consisted of aural patients who were found to have throat complications. The hospital is certainly carried on with due regard to economy, for the sum paid in salaries during the year, including that of the house-surgeon, only amounted to something over £100.

THE MEATH HOSPITAL.

At the annual meeting held on Monday the committee acknowledged the very handsome bequest from the late Mr. John Barber, amounting to £4500, which it is intended to expend in erecting a memorial ward, to be called the "Barber Ward." Mr. O'Reilly Dease, D.L., has also given a sum of £200 for the necessary expense in tesselating the entrance hall and accident corridor, as the first part of a memorial to his father and grandfather, both gentlemen having been distinguished surgeons of the hospital.

I understand that, at last, the report of the Dublin Hospitals Commission has been placed in the hands of his Excellency the Lord-Lieutenant.

The death is reported at Gorey, from blood-poisoning, of Dr. George Weldon, in his sixty-first year.

Dublin, April 5th.

[1] Erected by the benevolence of a citizen, Mr. Forster Green.

Obituary.

JOHN BRADY, F.R.C.S.I.

ON the 27th ult., at Rugby, a gentleman remarkable in his generation passed from our midst. Born in the year 1813 in the county of Cavan, Ireland, Mr. Brady at an early age repaired to London to study medicine, and in due course, becoming qualified, he started in practice in the Borough, in partnership with his brother Charles, who enjoyed the reputation of being a very skilful and accomplished surgeon. Quickly they established a large and lucrative practice, which doubtless would have become even more extensive, but for the fact of the partnership being terminated in consequence of the subject of this notice retiring from practice shortly after his marriage, in 1847, with a wealthy heiress, Miss Pritchard, of Ely, by whom he had two daughters, who survive him. Mrs. Brady died in 1860, and Mr. Brady never married again. Possessed of a singularly active and cultivated mind, he could not content himself with a life of idleness, so, turning his attention to politics, he entered Parliament as member for Leitrim in the year 1852, which constituency he represented uninterruptedly for twenty-seven years, his connexion with it being closed in consequence of failing health. As characteristic of the man, it may be mentioned that on the occasion of his first contesting Leitrim he was strenuously opposed, in consequence of his liberal opinions (opinions which nowadays would be looked upon as being conservative), by the leading Conservatives of the county, but subsequent acquaintance with his integrity of purpose and independence of character converted many of them into his staunchest political adherents. Firmly impressed with Roman Catholic doctrines, he was to a very remarkable degree tolerant of the religious belief of those who differed from him; generous to a degree, charitable, hospitable, and warm-hearted, to know him was to love him. In the year 1869 he introduced into Parliament the measure with which his name should always be gratefully associated, and on August 2nd, in that year, the "Medical Officers Superannuation (Ireland) Bill" became law. The writer of this notice was in the House on the Wednesday upon which he moved the second reading of the Bill, and well recollects the impression which his judicious and able statement made upon a most attentive audience. In recognition of this and other professional services, the Royal College of Surgeons in Ireland, on August 5th, 1869, conferred upon him their Honorary Fellowship. Mr. Brady was, moreover, a highly educated man and a ripe Shakespearian scholar, to which circumstance possibly may be attributed the fact of his intimacy with all the leading actors of the day, by whom he was looked up to as an authority. In addition to his professional distinctions, Mr. Brady was a J.P. and D.L. for Cambridgeshire in England and for the county of Leitrim in Ireland.

THE MARGATE ROYAL SEA-BATHING INFIRMARY.—At the annual meeting of the governors of and subscribers to this institution on the 31st ult., it was reported that during the past year 636 patients had been treated in the infirmary, of which number 495 had been discharged, seven had died, and 137 remained in the hospital. The out-patients during the year had numbered 36. The pecuniary support afforded is lamentably insufficient, and the committee have had great difficulty in carrying on the work of the charity during the past year. Increased and additional subscriptions are earnestly appealed for by the directors.

THE annual general meeting in connexion with the Victoria Hospital for Sick Children, Hull, was held on the 4th inst., when satisfactory reports were presented and adopted.

Medical News.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—At a meeting of the Court of Examiners held on March 28th and following days, the under-named, having passed their final examinations for the Letters Testimonial, were admitted Licentiates of the College:—

Joseph Daly, Richard H. Dickson, John W. Haughton, Joseph Lavertine, Reginald Rygate.

SOCIETY OF APOTHECARIES.—The following gentlemen passed the examination in the Science and Practice of Medicine, Surgery, and Midwifery, and received certificates to practise on March 31st:—

Hebblethwaite, Harold, Grove-terrace, Bradford.
Lingwood, Edgar Henry, Corrance-road, Brixton.

A NEW hospital is shortly to be erected in Hull, to be called the Hull Orthopædic Hospital.

HOSPITAL SUNDAY collections were held at Hartlepool on the 3rd inst.

THE Duke of Northumberland has signified his intention to give a site, consisting of 3000 square yards, for the proposed new infirmary for the borough of Tynemouth. The ground is valued at £1200.

BEQUESTS.—The treasurers of the Oldham Infirmary, the Southport Infirmary, and the Southport Convalescent Home have each received cheques for £2700 from the executor of the late Mr. George Redford, of Southport.

THE BRITISH OPHTHALMIC HOSPITAL, JERUSALEM.—A meeting of the friends of the above institution was held at the Jerusalem Chambers, Westminster Abbey, on the 30th ult. Sir Charles Warren was in the chair.

AT the Loughborough Petty Sessions on the 30th ult., a butcher was fined £10 and costs, or, in default, one month's imprisonment, for exposing for sale sixty-seven pieces of unwholesome meat.

MEDICAL MAGISTRATE.—Joseph Todd, M.R.C.S. Eng., and L.S.A., of Selby, qualified on Monday, the 4th inst., at the Quarter Sessions, as a Magistrate for the West Riding of Yorkshire, having been placed on the Commission of the Peace in January last.

ON the 30th ult. a new underground reservoir, recently constructed by the Water-works Company, to contain half a million gallons of water, was inaugurated at Tonbridge by Lady Goldsmid. The town has now a good supply of excellent water.

WORCESTER INFIRMARY.—At the recent annual meeting of the governors of this institution it was reported that the income during the past year had amounted to £3647, and the expenditure to £4391. The number of in-patients amounted to 1288, and of out-patients to 5214.

PRESENTATION.—On the 31st ult., Dr. Murdoch Cameron was presented by the students attending the midwifery classes of the University of Glasgow with an address signed by all the members of the class, in acknowledgment of his services as their teacher during the absence of the professor, Dr. Leishman.

ROYAL COLLEGE OF SURGEONS IN IRELAND MEDICAL SCHOOL.—The following have been awarded prizes in Anatomy for the past session:—Descriptive Anatomy: Senior prizeman, Mr. McIlwaine, £3 3s.; junior medalist, Mr. Wright. Practical Anatomy: Senior prizeman, Mr. Warren, £3 3s.; junior prizeman, Mr. Wright.

BIRMINGHAM MEDICAL INSTITUTE.—The annual meeting in connexion with this institute was held on the 31st ult., Mr. J. V. Solomon, President, in the chair. From the report, which was presented and adopted, it appeared the number of members has been increased by 173 during the past five years, the number of books taken out by members had increased by 1176, and during the past year the number of borrowers was 138, as compared with 73 in 1881. Dr. James Johnson was elected president for the ensuing year; Messrs. Gilbert Barling and Wood White were re-elected honorary secretaries, and Dr. Saundby and Mr. Bennett May librarians.

AT a recent inquest held at Portsmouth, the jury returned a verdict that the deceased had died from blood-poisoning caused by eating tinned salmon which was unfit for food.

AT the usual monthly meeting of the members of the Association of Public Sanitary Inspectors on the 2nd inst., Dr. Alfred Carpenter delivered an address on "Theory and Practice as to Disinfection." A discussion, in which several of those present took part, followed the reading of the paper.

SANITATION IN JAPAN.—Mr. W. K. Burton, senior engineer to the London Sanitary Protection Association, has been appointed Professor of Sanitary Engineering to the Imperial Institute, Tokio, by the Government of Japan. This institution is, we believe, the only college in the world as yet where such a professorship exists.

VOLUNTEER MEDICAL STAFF CORPS.—The Secretary of State for War has approved of the formation of a Volunteer Bearer Company at Manchester. The total strength of the company will be 100. It is to be an independent unit, subordinate to the military and medical authorities of the district. The company's formation will date from April 1st, 1887.

NORTH-WEST LONDON HOSPITAL.—On the 1st inst. the general court of governors of this institution was held for the purpose of receiving the eighth annual report. It was stated that during 1886 602 in-patients had been admitted, and 33,687 cases treated as out-patients, 10,673 of these being new cases. The receipts for the year amounted to £3477, the annual subscriptions producing £536 of this sum.

VACCINATION GRANTS.—The following gentlemen have received the Government grant for successful vaccination in their respective districts:—Mr. Edward Jay, St. George's, Hanover-square; Dr. G. Hales Parry, Docking Workhouse and District, Norfolk (third time); Mr. Thomas Brett Young, of the Romsley District of the Bromsgrove Union; Mr. F. W. Lewis, of Llandovery Union (second time in succession).

AT the monthly meeting of the Manchester Royal Infirmary Board, held on the 28th ult., Mr. Alderman King presiding, it was reported that an arrangement had been made for the reception of cases of infectious disease from Salford at the Monsall Hospital, in consequence of the infectious hospital at Cross Lane, Salford, having been purchased by the London and North-Western Railway Company for the purposes of railway extension.

ST. JOHN AMBULANCE ASSOCIATION.—A course of lectures on "First Aid to the Injured" has been recently delivered to some of the senior boys of King Edward VI.'s Grammar School, Berkhampstead, by R. L. Batterbury, M.D. Lond., one of the medical officers of the school. The examination was conducted by Surgeon-Major Casson, and, out of twenty-five candidates, twenty-three are reported to have passed, and will obtain the certificate of the Association.

UNIVERSITY COLLEGE HOSPITAL.—The annual meeting of the supporters of this institution was held on the 31st ult., when it was reported that 2638 patients had been admitted during the year, of which number 1260 were cured and 868 relieved. The out-patients numbered for the year a total of 35,765, besides which a large number had been seen on the recommendation of local and other medical men, making the total of in- and out-patients upwards of 40,000. The number of beds during 1886 was 209. A hope was expressed that this Jubilee year would see the debt of about £14,000 cleared off.

THE JUBILEE.—The amount contributed to the Jubilee Fund for the extension of the Aberdeen Infirmary now stands at £16,264. The sum required is £30,000. It has been decided to erect a Jubilee cottage hospital at Castle Cary.—About £420 has been promised to the building fund in connexion with the Dartmouth cottage hospital scheme, and £86 annual subscriptions; the total amount required, however, being about £2000.—On the 31st ult. a new infirmary and dispensary was opened in Bideford. The institution, which has cost about £2000, has been, in celebration of the Jubilee, opened free of debt.

FOSTER AND WHEELHOUSE ELECTION EXPENSES FUND.

TREASURER'S ACCOUNT, FROM OCTOBER 5TH, 1886, TO MARCH 31ST, 1887.

Dr.	*Receipts.*				
To subscriptions (as per counterfoil receipt-book)				£88	10 0
,, Sir B. W. Foster, M.P.	£126	11	7		
,, C. G. Wheelhouse, Esq.	123	10	7		
				250	2 2
				£338	12 2

Cr.	*Payments.*		
By printing, postages, and stationery	£272	10	4
,, advertising	49	8	6
,, secretarial expenses	14	17	4
,, treasurer's expenses	0	15	0
,, audit fee	1	1	0
	£338	12	2

ROBERT SAUNDBY, M.D., Hon. Treasurer.

Examined and found correct. CARTER & CARTER, Chartered Accountants, Birmingham.

MEDICAL NOTES IN PARLIAMENT.

Dublin Hospital Commission.

IN the House of Commons, on the 4th inst., Dr. Kenny asked the Chief Secretary to the Lord-Lieutenant of Ireland whether the report and minutes of evidence of the Dublin Hospital Commission were yet ready; if not, when members might expect them to be laid upon the table.—Mr. A. J. Balfour, in reply, said that it is understood that the report will shortly be submitted to the Lord-Lieutenant. On its receipt the Irish Government will be in a position to consider whether it, as also the minutes of evidence, should be laid upon the table.—Dr. Tanner asked an explanation of the delay.—Mr. A. J. Balfour presumed the delay had occurred in the writing of the report, but he reminded the hon. member that it by no means followed because a report was presented that it should therefore be laid on the table of the House. That was a matter within the discretion of the Lord-Lieutenant.

Indian Medical Staff.

On the 5th inst., in answer to Dr. Tanner, who asked as to the rank and allowances of officers belonging to the medical staff of India under six years' service, Sir J. Gorst stated that the rank of these officers is that of surgeon. Their allowances are more than those of subalterns, but less than those of captains. After six years they are more than those of captains. They do receive the allowances of their rank. There are no claims appertaining to relative rank and no loss is suffered.

The Pharmacy Acts Amendment Bill.

On Tuesday morning, Dr. Farquharson moved the second reading of this Bill, briefly narrating the circumstances which led to its introduction, and urging that its enactment would be in the public interest.—Dr. Clark regretted that he felt it his duty to oppose the second reading. The object of the measure was to give additional powers to the Pharmaceutical Society, and powers which it ought not to possess. Up to 1868 anyone could carry on the business of a chemist and druggist, but in that year a Register of chemists and druggists was drawn up, and those who practised the trade were called upon to pass a qualifying examination. But now the Society wished to go still further, and to be allowed to create a curriculum, and to compel students to pass in chemistry, botany, and materia medica. The only result of the passing of the Bill would be to make the trade a close corporation, to make it easy for students to pass in large towns, but to make it almost impossible for those to qualify who lived in small towns and poor neighbourhoods. By allowing the Bill to pass the House would depart from the principle of free trade, by limiting the sale of drugs to a very small class, and he could only say that if this power was to be conferred on any body, it should be given to a public body, and not to a private society of traders, who could make bye-laws which should have all the effects of an Act of Parliament. If the Bill were pressed and carried to a second reading, he should feel it his duty in committee to endeavour to amend it and make the Pharmaceutical Society more representative of the 12,000 members of the trade. In his opinion there was no necessity for the proposed change, and he should therefore move that the Bill be read that day six months.—Mr. H. J. Wilson seconded this amendment.—Mr. Chance supported the Bill on the ground that it would assimilate English and Scotch law to that prevailing in Ireland, which had worked so satisfactorily.—Dr. Tanner thought there was considerable fear that the rights of many chemists and druggists were not properly respected. He urged that the second reading should be deferred a few days to allow some necessary amendments to be drafted. On a division the Bill was read a second time by 76 votes to 22.

The Committee stage of this measure came on for consideration on Wednesday morning at 2 A.M. On the motion that the Deputy Speaker do now leave the chair, Colonel Hodge moved the adjournment of the debate. The Bill had passed through the second reading with only a slight run of opposition, and he hoped the House would agree to an adjournment.—Dr. Farquharson said he had himself intended to move the adjournment of the debate, and subsequently to move to report progress. Many members were deeply interested in the Bill and desired to put amendments on the paper, and to have longer time for its consideration.—Mr. Chance and Mr. Lowther supported the motion for the adjournment.—Dr. Tanner said there were several points in the Bill which demanded investigation. It was alleged at first that the Bill was the same as the law which applies to chemists in Ireland. Accordingly from what he knew of the measure, he was not at all satisfied about it, and he should certainly support the adjournment.—Dr. Clark said he thought his hon. friend the member for Aberdeenshire might accept the motion. The Bill was brought forward between two and three o'clock on the previous evening and advanced a stage. It was an important measure, affecting thousands of people whose livelihood would be taken away.—Mr. Biggar also supported the motion for the adjournment, which was carried by 95 votes against 29. The debate was accordingly adjourned till Tuesday, April 19th.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

ABBOTT, C. E., M.R.C.S., L.K.Q.C.P.I., has been reappointed Medical Officer of Health for the Braintree Rural Sanitary District.

BERNSTEIN, MEYER J., M.B., C.M.Ed., has been appointed Honorary Medical Officer for the Fourth District of the Liverpool Ladies' Charity and Lying-in Hospital.

CAPE, JOSEPH THOMAS, M.R.C.S., L.S.A., has been re-elected Medical Officer of Health by the Rural Sanitary Authority of the Totnes Union.

CHICK-LUCAS, J. R. G., M.R.C.S., L.S.A., has been appointed Honorary Medical Officer to the Ryde Dispensary, Isle of Wight.

CROZIER, WILLIAM, M.K.Q.C.P.I., L.R.C.S.I., has been appointed Honorary Medical Officer for the Ninth District of the Liverpool Ladies' Charity and Lying-in Hospital.

DOWDING, ALEX. W. WOODMAN, M.D.Durh., M.R.C.S., has been appointed Medical Officer for the Haughley District of the Stow Union, vice Stephens.

DURWARD, JAMES STEWART, L.D.S. R.C.S.Ed., has been elected to the Senior Staff of the Edinburgh Dental Hospital.

EDIS, JOHN BUTLER, M.R.C.S., L.R.C.P.Ed., has been appointed Hon. Surgeon to the Hospital for Women, Shaw-street, Liverpool.

EUSTACE, MARCUS, B.A., M.B., B.Ch.Dub., has been appointed Medical Officer for the Second District of the Alresford Union.

FALKINER, NINIAN MCINTIRE, A.B., M.B., B.Ch. Dub., has been appointed Visiting Physician to the Convalescent Home, Stillorgan, Dublin.

FLETCHER, RORY, M.R.C.S., L.S.A., has been appointed Resident Medical Officer to the Male Lock Hospital, Dean-street, Soho, W., vice G. W. H. French, F.R.C.S.

GOODALL, JOHN KENAZ, L.R.C.S., L.R.C.P.Ed., has been reappointed Medical Officer for the Bolsover District of the Chesterfield Union.

HAGYARD, ROBERT, M.R.C.S., L.S.A., has been appointed Honorary Surgeon to the Hull Orthopædic Hospital.

HALL, ANDREW JOHNSTON, M.A., M.D., C.M.Glas., has been appointed Medical Officer for the Parish of Rothesay, vice Maddever, deceased.

HASWELL, J. F., M.B., C.M.Edin., has been appointed Junior House-Surgeon to the Northern Hospital, Liverpool, vice C. C. Charlton, resigned.

HUNTER, CHARLES BUCHANAN, M.B., C.M., has been appointed Surgeon to H. H. the Nizam's Railway, Hyderabad, India.

HUTCHESON, JAMES, M.B., C.M.Ed., M.R.C.S., L.R.C.P.Lond., has been appointed Surgeon to the Edinburgh Royal Maternity and Simpson Memorial Hospital.

JOHNSTONE, WM., has been appointed Public Analyst to the Boroughs of Dartmouth and Dunstable.

MACKENZIE, THOMAS, M.A.Glas., M.B., C.M.Ed., has been appointed House-Surgeon to the Edinburgh Royal Maternity and Simpson Memorial Hospital.

MARTIN, MATTHEW, M.B., C.M.Glas., has been appointed Medical and Surgical Officer to the Parkhead Steel and Rolling Mills, Glasgow.

OWEN, RICHARD JEFFERYS, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Second District of the Llandovery Union.

PACKER, W. HERBERT, M.D., L.R.C.P., has been appointed Medical Visitor to the Shropshire Private Lunatic Asylums, vice Edwyn Andrew, M.D., deceased.

ROBERTS, JAMES B., M.B., C.M.Ed., has been appointed Medical Officer for the Fourth District of the Nottingham Union.

SEMPLE, HENRY F., M.R.C.S., L.R.C.P., has been appointed House-Surgeon to the Bristol Hospital for Sick Children and Women, vice E. Leonard Lees, M.B., C.M., M.R.C.S.

STADDON, WALTER JOSEPH, M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Medical Officer for the Workhouse of the Leeds Union.

WARE, GEORGE STEPHEN, M.R.C.S., L.R.C.P., L.S.A., late House-Physician and Obstetric House-Physician, has been appointed House-Surgeon to the Middlesex Hospital.

WILSON, JAMES, M.B., C.M.Glas., has been appointed Surgeon to the Eltrick Lodge of Ancient Shepherds, vice A. Muir Smith, resigned.

WILSON, WILLIAM, M.B., C.M.Ed., L.R.C.S., L.D.S., has been elected to the Junior Staff of the Edinburgh Dental Hospital.

YEATMAN, J. W., M.R.C.S., has been appointed Government Medical Officer for the Upper Wakefield and Saddleworth Districts, South Australia, vice H. F. Harvey, M.R.C.S., resigned.

Vacancies.

In compliance with the desire of numerous subscribers, it has been decided to resume the publication under this head of brief particulars of the various Vacancies which are announced in our advertising columns. For further information regarding each vacancy reference should be made to the advertisement.

BRADFORD INFIRMARY AND DISPENSARY.—Dispensary Surgeon. Salary £100 per annum, with board, residence, and washing.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park, E.—Resident Clinical Assistant. A gratuity of £20 is usually awarded at the close of the term of office (six months).

GREAT NORTHERN CENTRAL HOSPITAL, Caledonian-road, N.—Aural Surgeon.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, Bloomsbury, W.C.—Clinical Assistants in the Out-patient Department.

QUEEN'S HOSPITAL, Birmingham.—Obstetric and Ophthalmic House-Surgeon. The appointment carries with it board, lodging, &c.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION, Ventnor.—Assistant Resident Medical Officer. Small honorarium.

SCARBOROUGH FRIENDLY SOCIETIES' MEDICAL ASSOCIATION.—Resident Medical Officer. Salary £200 for the first year, £220 for the second (if satisfactory), with fees extra, and residence, free of rates and taxes, with an allowance for coals and gas.

SMEDLEY'S HYDROPATHIC ESTABLISHMENT, Matlock-bridge, Derbyshire.—Junior Resident Physician. Salary £150 per annum for the first year, with accommodation in the establishment.

ST. PANCRAS INFIRMARY, Dartmouth-park-hill, Highgate, N.W.—Dispenser. Salary £100 per annum, with dinner daily, and, subject to the approval of the Local Government Board, rising by £10 annually, to £120.

Births, Marriages, and Deaths.

BIRTHS.

BLOXAM.—On the 31st ult., at George-street, Hanover-square, W., the wife of J. Astley Bloxam, F.R.C.S., of a son.

BOWES.—On the 2nd inst., the wife of John Ireland Bowes, Medical Superintendent of the Wilts County Asylum, Devizes, of a daughter.

EAST.—On the 30th ult., at Upper Berkeley-street, Portman-square, W., the wife of Edward East, M.R.C.S., of a son.

MORRIS.—On the 29th ult., at Windhill, Bishops Stortford, Herts, the wife of John Edward Morris, M.D., of a son.

O'CONNELL.—On the 29th ult., at North-villas, Havelock-park, Southsea, the wife of Surgeon-Major E. O'Connell, of a daughter.

RUSHBROOK.—On the 3rd inst., at Upper Phillimore-place, Kensington, Janet Monteath Rushbrook, L.R.Q.C.P.I., L.M., wife of Henry George Rushbrook, of a daughter.

SHAW.—On the 17th ult. (St. Patrick's day), at Mildenhall, Soham, Suffolk, the wife of H. C. Costello Shaw, L.R.C.P.Lond., M.R.C.S., of a daughter.

TROTT.—On the 13th ult., at Waterloo, Hamilton, Bermuda, the wife of Dudley C. Trott, M.B., B.C., F.R.C.S., of a daughter.

MARRIAGES.

CRANE—CRANE.—On the 2nd inst., at the Parish Church of St. Marylebone, Leonard Crane, M.D., Surgeon-General, Trinidad, to Lillie, fourth daughter of the late Wm. Crane, Speaker of the House of Assembly, New Brunswick.

JONES—JONES.—On the 30th ult., at St. George's Parish Church, Beckenham, Kent, John Ellis Jones, M.B., C.M., to Catherine (Kate), youngest daughter of the late Robert Jones, of The Mount, Llanfair, Montgomeryshire.

THOMSON—MACPHAIL.—On the 30th ult., at Free Church Manse, Kilmuir, Skye, N.B., John Thomson, M.B., C.M.Edin., to Isabel Finlayson, fourth daughter of the Rev. John S. Macphail, of Kilmuir.

DEATHS.

COATES.—On the 26th ult., at 1, Westbourne-street, Eaton-square, S.W., Frederick Thomas Coates, M.R.C.S.E., second son of the late George Coates, Surgeon, of Bloomsbury, aged 43. Deeply lamented.

HENSLEY.—On the 4th inst., at Colcherne-road, S.W., Frederick John Hensley, M.D., M.R.C.S., L.S.A., in his 65th year.

KEDDLE.—On the 29th ult., at The Elms, Beaminster, after a long and trying illness, Samuel Shering Keddle, M.D., J.P. for co. Dorset, within two months of completing his 90th year.

SHAW.—On the 31st ult., at Bishopsgate-street Without, after a lingering illness, Henry Shaw, M.R.C.S., in his 74th year.

STIRLING.—On the 30th ult., at Marine-parade, Brighton, Wm. Boughton Stirling, M.D., and of Nottingham-place, W.

VACHER.—On the 30th ult., at 31, Shrewsbury-road, Birkenhead, John, infant son of Francis Vacher, F.R.C.S.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

BOOKS ETC. RECEIVED.

ALLEN, E. W., Ave Maria-lane, London.
Electricity in the Treatment of Disease. By J. R. Tunmer, M.R.C.S. pp. 108.

BAILLIÈRE, J. B., ET FILS, Paris.
Tumeurs de l'Ombilic. Par le Dr. Francis Villar. pp. 156, avec 7 photogravures.

BAILLIÈRE, TINDALL, & COX, King William-street, Strand, London.
Griffiths' Materia Medica and Pharmacy. Third Edition. Edited and in part written by Alfred S. Gubb, L.R.C.P., M.R.C.S. pp. 464.
On Overwork and Premature Mental Decay; its Treatment. By C. H. F. Routh, M.D., M.R.C.P. Fourth Edition. pp. 149.
The Lettsomian Lectures on Bronchial Asthma. By J. C. Thorowgood, M.D. Third Edition, with a Chapter on Asthma in relation to Gout. pp. 98.

CHURCHILL, J. & A., New Burlington-street, London.
Electrical and Anatomical Demonstrations. By Herbert Tibbits, M.D. pp. 94.

FISCHER G., Jena.
Die Allgemeine Pathologie oder die von den Ursachen und dem Wesen der Krankheitsprocesse. Von Dr. Edwin Klebs. Erster Theil. S. 514, mit 66 Theilweise Farbigen und 8 Farbentafeln.

GRIFFIN, C., & Co., Exeter-street, Strand, London.
A Treatise on Diseases of the Skin. By T. McCall Anderson, M.D. pp. 639, with Plates and numerous other Illustrations.

HIRSCHWALD, A., Berlin.
Handbuch der Allgemeinen und speciellen Arzneiverordnungslehre. Bearbeitet von Dr. C. A. Ewald. Fünfte Auflage. S. 849.

HOULSTON & SONS, Paternoster-square, London
Enquire Within upon Everything. Seventy-fifth Edition, revised. pp. 415.

KEGAN PAUL, TRENCH, & Co., Paternoster-square, London.
The Sisters of St. Mary at the Cross. By the Rev. H. D. Nihill. pp. 301.

KELLOGG, W. A., New York.
The Therapeutical Drinking of Hot Water, its Origin and Use. By E. Cutter, M.D. pp. 34.

LEWIS, H. K., Gower-street, London.
The Middlesex Hospital Reports for 1885. pp. 400.
Ligaments, their Nature and Morphology. By John Bland Sutton, F.R.C.S. pp. 107.
On the Diagnosis of Diseases of the Brain, Spinal Cord, and Nerves. By C. W. Suckling, M.D. Lond., M.R.C.P. pp. 297, with Illustrations.

LIPPINCOTT, J. B., & Co., Philadelphia.
Nervous Diseases and their Diagnosis. By H. C. Wood, M.D., LL.D. pp. 501.
Wear and Tear; or Hints for the Overworked. By S. Weir Mitchell, M.D., LL.D.Harv. Fifth Edition, thoroughly revised. pp. 76.

LONGMANS, GREEN, & Co., Paternoster-row, London.
Through the Fields with Linnæus: a Chapter in Swedish History. By Mrs. Florence Caddy. In 2 vols. pp. 347—376. Illustrated. 16s.
The Essentials of Histology, Descriptive and Practical. By E. A. Schäfer, F.R.S. Second Edition, Revised. pp. 252. Illustrated.

MACMILLAN & Co., London and New York.
The Practitioner's Handbook of Treatment, or the Principles of Therapeutics. By J. Milner Fothergill, M.D. Third Edition, enlarged. pp. 667.
The Treatment and Utilisation of Sewage. By W. H. Corfield, M.A., M.D.Oxon. Third Edition, revised and enlarged. pp. 510.

MASSON, G., Paris.
L'Amputation du Membre Supérieur dans la Contiguité du Tronc. Par Prof. Paul Berger. pp. 372, avec 2 figures et 3 planches en Chromolithographie.

MEDICO-LEGAL SOCIETY, New York.
Papers read before the Medico-legal Society of New York. Third Series. Revised Edition. pp. 550.

OBSTETRICAL SOCIETY OF LONDON.
Transactions of the Obstetrical Society of London. Vol. xxviii.

SMITH, ELDER & Co., Waterloo-place, London.
Dictionary of National Biography. Edited by Leslie Stephen. Vol. X.: Chamber—Clarkson. pp. 456.

SWAN SONNENSCHEIN, LOWREY, & Co., Paternoster-square, London.
School Hygiene. By Arthur Newsholme, M.D. pp. 143.

WHITTAKER & Co., White Hart-street, London.
Parliamentary Companion, 1887. Fifty-first year. pp. 358. 4s. 6d.

WOOD, WM., & Co., New York.
A Reference Handbook of the Medical Sciences. By various Writers. Edited by A. H. Buck, M.D. Vol. IV. pp. 816. Illustrated by Chromolithographs and Wood Engravings.

Oxygen as a Remedial Agent; by C. J. Smith.—On a Peyerian Ulceration of Small Intestines, apparently new; by H. Vandyke Carter, M.D.—Von Dr. P. G. Unna: Zur Kenntniss des elastischen Gewebes der Haut; Die Rosaniline und Pararosaniline (Voss, Hamburg).—Scientific Memoirs by Medical Officers of the Army of India; edited by B. Simpson, M.D., Surgeon-General with the Government of India; Part II.—Rapport fait au nom de la Commission chargée d'examiner de Projet de Loi ayant pour objet l'Utilisation Agricole des Eaux d'Egout de Paris et l'Assainissement de la Seine; par M. Bourneville, Député (Quantin, Paris).—Typhoid Fever in Melbourne, its Prevalence and Causation; by Jas. Jamieson, M.D.—Cancer, its Origin and Prevention, with other allied Diseases, in connexion with the C. D. Acts; by Dr. W. Williams, M.D.—Thurley Tighe, or the Life of a Student; by Felix Weiss.—Die Pathologie und Therapie der Gelenkentzündungen; von Dr. Max Schüller (Urban and Schwarzenberg, Wien).—Tenth Annual Report of the Board of Health of the State of New Jersey, 1886.—Ueber Neuritis Optica; von Prof. R. Deutschmann (Fischer, Jena).—Index Medicus, Vol. IX., No. 2.—Parliamentary Companion, 1887.—Hystérie et Traumatisme; par le Dr. Paul Berbez (Bureaux du Progrès Médical).—Magazines for April: Good Words; Sunday Magazine; Leisure Hour; Sunday at Home; Boys' Own Paper; Girls' Own Paper; Scribner's Magazine.—The Medical Treatment of our Time; by one of the Excommunicated (Unwin Brothers).—A new Clothing Case for the Soldier; by W. Thornton Parker, M.D.—Bibliographie des Sciences Médicales (J. B. Baillière, Paris).—La Cossalgia e la Resezione Coxofemorale; pel Dott. A. Turretta.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Stewart's Instruments.)

THE LANCET Office, April 1st, 1887.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radia in Vacuo.	Max. Temp. Shade.	Min. Temp	Rain fall.	Remarks at 8.30 A.M.
Mar. 31	30·19	W.	45	43	76	54	37	...	Cloudy
Apl. 1	29·59	W.	39	38	75	47	36	·13	Snowing
,, 2	29·92	N.W.	42	39	84	55	35	·32	Cloudy
,, 3	30·12	W.	46	43	77	55	39	...	Cloudy
,, 4	29·87	W.	44	41	97	58	39	...	Fine
,, 5	29·52	N.E.	42	41	...	43	41	...	Raining
,, 6	29·74	N.E.	42	39	...	44	39	·15	Overcast

Notes, Short Comments, & Answers to Correspondents.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

All communications relating to the editorial business of the journal must be addressed "To the Editors."

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news-paragraphs should be marked and addressed to the Sub-Editor.

Letters relating to the publication, sale, and advertising departments of THE LANCET *to be addressed "to the Publisher."*

We cannot undertake to return MSS. not used.

THE LITERATURE OF THE SPLEEN.

J. W. (Leicester).—The treatise referred to is by Dr. Guido Baccelli, President of the Accademia Medica di Roma, and some time Professor of Clinical Medicine at the Sapienza. It was published in Latin in the year 1876, and its title is "De Primitivo Splenis Carcinomate (histologice, lympho-sarcomate); historia, diagnosis, extispicium" (on Primary Carcinoma of the Spleen—in histological classification "lympho-sarcoma"—a history, diagnosis, and necropsy). It is inscribed in an appropriate dedication to Dr. Eduard Rindfleisch.

Alpha is thanked for his letter on the Leicester Sick Benefit Society. We shall be glad for any published statement of the case. We could not insert an anonymous letter.

M.B.—The matter should be brought under the notice of the Apothecaries' Society.

Alsina.—The name mentioned was not struck off the Register.

THE LUNACY BILL.

To the Editors of THE LANCET.

SIRS,—Will you kindly allow me through your columns to invite all workhouse medical officers interested in the Lunacy Acts Amendment Bill to attend our council meeting on Thursday, April 14th (5 P.M.), at 3, Bolt-court, Fleet-street, as the clause particularly affecting them will be under discussion.

I am, Sirs, yours truly,

J. WICKHAM BARNES.

Poor-Law Medical Officers' Association, 3, Bolt-court, Fleet-street, E.C., April 4th, 1887.

Felix.—Dr. Frederick Roberts' book "Notes on Materia Medica" (Lewis) or Dr. Mitchell Bruce's Materia Medica and Therapeutics (Cassell) will give the proportions.

Mr. C. S. Jeaffreson.—The paper will appear shortly.

BREAD-MAKING.

To the Editors of THE LANCET.

SIRS,—In answer to the letter of Mr. Robert Jones in THE LANCET of the 26th ult., I beg to say that my late father, Dr. Thos. Smith, wrote an article entitled "An Improved and more Wholesome Mode of Making Bread." The article appeared in the *Leeds Mercury* of Feb. 17th, 1844, and I have a printed copy of the same.

I am, Sirs, yours truly,

Cheltenham, April 4th, 1887. FRED. A. A. SMITH, M.D.

THE FIFTY-TWO YEARS' PLAGUE.

ACCORDING to Procopius, "the Byzantine Herodotus," the Plague began A.D. 542 in the Nile delta at Pelusium, and dividing its forces it attacked Alexandra and the rest of Egypt on the one hand and Palestine on the other. Beginning always on the sea-shore, it penetrated inland, depopulating islands, caverns, hill tracts—wherever, in short, human beings were found. In its second year it invaded Byzantium in the middle of spring. Many of its victims felt themselves struck in some part of the body, when, by way of exorcising the assailant, they would utter some sacred word and hurry into the nearest temple. To escape the importunities of friends, others, again, would barricade themselves in their rooms and plug their ears so as not to hear the loud knocking at their doors. A feverish malaise arousing them from sleep or arresting them in their walk or at their work was the first symptom; but there was no change of colour, or sense of burning heat, or inflammatory affection, so that in the evening neither patient nor physician was alive to any danger. But many on the same day or the day following, or a considerable time thereafter, saw a bubo rising on the groin, or in the armpits, or on the parotids, or in other regions, and this symptom was common to every sufferer from the disease. Somnolence, stupor, or acute delirium were often present, with forgetfulness of every call of nature, so that many who happened to be without attendants died of hunger. Contact with patients or with the dead gave the malady neither to physician nor to sexton, while many—they knew not why or how—were attacked and succumbed in a few hours. Patients flung themselves into the sea or from high places in anticipation of death, while in others the bubo, not preceded by visions or delirium, passed into gangrene, and they died in convulsive agony. The physicians suspecting these plague ulcers to contain a poison which caused the disease, opened them in many dead subjects, and found them to contain a large carbuncle. Those cases in which the body was covered with black pustules, the size of a lentil, died within twenty-four hours, while others vomited blood till death relieved them. Errors in prognosis were infinite, able physicians foreseeing death where marvellous recovery supervened, and predicting recovery just before fatal collapse. Therapeutics were equally at fault. The bath was of use in some cases; worse than useless in others. It was quite as ineffectual to fly from the disease as to treat it—such was the ignorance as to its origin or its issue. Those in whom the bubos proceeded to copious suppuration got well, as with the defervescence of the carbuncle the signs of returning health revealed themselves. Recovery was not always, however, complete, the survivors being often afflicted with semi-paralysis of the tongue, impairing distinctness of articulation for life. In Byzantium the plague lasted four months, during three of which it was at its maximum, when the mortality reached 10,000 daily, till the city seemed deserted. Other details confirmatory, with few exceptions, of the powerful description by Procopius fill in the sombre picture, and must be drawn from the histories of Agathias and Evagrius. Gibbon, in his condensation, followed with greater authority by De Renzi, contests the dictum of Procopius that the disease was non-contagious, an epithet scarcely applicable to a visitation which passed from country to country, beginning at the seaports and penetrating inland. Another point indicated by De Renzi is the evidence deducible from Procopius that the Byzantine physicians practised morbid anatomy and sought out the causes of disease by pathological research:—"Even the Christians of the sixth century did not hold the dead subject to be so intangible as not to afford to science the means of exploring the structure of the body, and so of aiding anatomy" ("Scuola Salernitana," vol. i., p. 31).

Mr. Kingzett.—A specimen of the preparation should be sent for examination.

A One-eyed Engine-driver.—We cannot say we are greatly impressed with the force of the argument used by our correspondent.

A WARNING.

To the Editors of THE LANCET.

SIRS,—As a hint to my professional brethren, I send a line to say that a man called at my house yesterday afternoon, at about 3 o'clock, and asked if I was in. On my servant replying in the negative, he asked when I was expected, and was told that I would return in about half an hour. He said he would wait, and taking up a newspaper sat down In a very short time he was seen by my servant going out of the house, saying that he had some business to transact, and would call again. It is needless to say that he did not return, and it was discovered that he had taken with him a pocket dressing-case and binaural stethoscope, together of the value of from £4 to £5. The man was of middle height, dark complexion, about forty years of age, and called himself "Mr. Kerr."

I am, Sirs, yours faithfully,

ARTHUR B. T. LONGHURST, M.D.

Wilton-street, S.W., March 29th, 1887.

WINTER HEALTH RESORTS AT HOME.

A CORRESPONDENT is anxious to direct attention to the advantages of Colwyn Bay, North Wales, as a winter health resort for poitrinaires. "I have travelled," says the writer, "in many places in Europe and Asia Minor, but find no climate better than this." He regards the relief he has experienced from many severe symptoms of chest affection as due to the ameliorating influence of the climatic conditions prevailing in the four successive winters he has spent in the locality in question.

Mr. A. W. Stirling.—The note was founded upon an article in one of the March numbers of the *Lyon Médical* (March 13th?).

Mr. C. Roberts.—Next week.

RAPID STAINING OF THE TUBERCLE BACILLUS.

To the Editors of THE LANCET.

SIRS,—I can strongly recommend the following mode of staining the tubercle bacillus in cover-glass preparations for clinical purposes. It is a slight modification of Neelsen's method. The stain—which in my opinion is preferable to any of those containing solutions of aniline—is made by dissolving one part of magenta in 100 of a 5 per cent. watery solution of carbolic acid, and adding 10 of absolute alcohol. A sufficiency of this fluid is poured into a watch-glass, and heated on a retort-stand over a spirit lamp till steam rises freely and the temperature is not very far from the boiling point. The cover-glasses, prepared in the usual way, are then floated in the stain for two minutes; if the right temperature has been reached this is quite long enough; the watch-glass should be covered. In Neelsen's method the preparations are then decolourised with acid, and subsequently stained with blue as a contrast. I find that these processes may be very conveniently combined by dissolving methylene blue in 25 per cent. sulphuric acid till a deep colour is obtained, and immersing the cover-glasses for one minute in this immediately after their removal from the magenta. They are then rinsed in water, dried, and mounted in balsam. The whole process of staining and mounting occupies about six minutes according to my experience. Possibly this method may have been already suggested; if so, it has escaped my notice.

I am, Sirs, yours faithfully,

Eastbourne, March 31st, 1887. HENRY S. GABBETT, M.D.

H. L. H.—1. On the 1st of June.—2. Spottiswoode's, East Harding-st., London, E.C.

Dr. Uhlworm (Cassel).—We cannot exchange.

THE SELFISH PRINCIPLE AND MEDICAL ETIQUETTE.

To the Editors of THE LANCET.

SIRS,—Many of those who recognise the truth of M.D.'s letter under the above heading, in your last issue, will coincide with your comment upon it. We all know the Pharisee in medical etiquette; we know his ways, even if we cannot always escape his toils. These people should concern us very little. Luther is reported to have fought the great battle of the Reformation under the motto, "In quietness and confidence shall be your strength." Such also should be our motto, and it is not that of the complaining Pharisee. What "M.D." really means is that we general practitioners, who endeavour to bear our wrongs in silence, do not receive sufficient support from the medical papers. All that the Pharisee wants is recognition—an incomplete sympathy with his grievance suits him best, and his own glib tongue supplies what is lacking. These wasps of the profession cannot make honey, but they can use their stings, and they dip them in any available venom. The life work of every successful practitioner contains a ready antidote in his consciousness of good done, and perhaps less frequently in its grateful recognition. But no great good is attained without personal peril. Therefore, my brother "M.D.," take courage and persevere—as your work is, so shall your strength be; as your strength is, so should be your silence.

I am, Sirs, yours truly,

April, 1887. ANOTHER M.D.

G. M.—The subject is, we fear, hardly ripe for discussion, but will not be lost sight of.

A very old Subscriber has not enclosed his card.

WHAT IS BRONCHITIS?

To the Editors of THE LANCET.

SIRS,—Will you permit me through the medium of your valuable journal to ask the medical profession what is bronchitis? Is it a fever, and to be classified with other specific fevers, such as whooping-cough and measles? My own impression is that it is not, but that it is a diseased state of the bronchial tubes, invariably the result of fever poison, such as in influenza, (by far the most common cause), and also of typhoid, typhus, small-pox, measles, or some other fever poison. I think this is a matter which should be well thought out by the profession, or at the onset of a disease we may by the bronchitis be led away from the cause of the mischief. And in treating it we should put to ourselves the question, What is the cause of this derangement? Is it from within—i.e., from gout, or from without, from one of the specific fevers? I hold the same view with regard to pneumonia, pleurisy, and peritonitis.

I am, Sirs, your obedient servant,

Slough, April 4th, 1887. WM. U. BUÉE, M.R.C.S.

ENGLISH PRACTITIONERS IN ITALY.

HOLDERS of British diplomas in Italy may practise among the English-speaking communities there without an Italian qualification. In Rome (which, as the capital, may be presumed to regulate the usage of the provincial towns) the English practitioner must, if called upon, be prepared to certify to the municipality his professional credentials by producing his diploma, or (still better) the British Medical Register containing his name. The Italian Government, indeed, so far recognises his right to practise in the Peninsula as to make him pay income-tax (*ricchezza mobile*) on the average of his professional income. An Italian qualification, however, is required if the English practitioner's *clientèle* extends to the native population, though cases are quite common in which Italian patients call in the English consultant possessing only a British qualification and remunerate him with a *honorarium* on the English scale.

R. P. (New York).—A dictionary of medical nomenclature cannot be called complete unless it gives correctly the pronunciation of each term. Angina, in the common collocation "angina pectoris," is usually mispronounced. The penult is short, as in the hexameter of Lucilius: "Insperato ablit quem una angina eustulit hora" (He departed unexpectedly, whom angina removed in an hour). Again, in the medical poem of Serenus Sammonicus: "Anginæ verō sibi mixtum sale poscit acetum" (But angina requires vinegar mingled with salt). It is also short in the "Trinummus" of Plautus, v. 540, ed. Cocchia (Turin, 1886), who rightly derives it from the Greek ἀγχόνη.

Justice.—If all the circumstances of the case are correctly stated by our correspondent, we have no doubt that an appeal to the head of the Department would ensure a reconsideration of, and a just decision upon, the claims of the officer concerned.

M.R.C.S.Eng.—From the description given of the lad, we should think the possession of the power attributed to him can scarcely be doubted.

ANOSMIA.

To the Editors of THE LANCET.

SIRS,—In response to "Constant Reader," I beg to suggest the following, and have no doubt if carried out relief will be experienced. Strychnine hypodermically injected at the sides of the nose, together with electricity (a battery of about thirty or forty cells), would best meet the requirements, which should be used daily. This would restore the sense of smelling if anything would, as the olfactory and other nerves would be directly roused by the above. Headaches would be best treated by bromide of potassium and belladonna, to which might be added small doses of tincture of nux vomica, and should be continued with steadily for some time. The solution of extract of ergot and tincture of hyoscyamus are often found of the greatest benefit in the treatment of headaches, and are worthy of a trial. Mild aperients would be essential, especially if any costiveness were present. Further, I should suggest the head to be bathed in cold water daily, and cold applications might be applied during attacks with advantage. The offensive odour is most probably due to some diseased teeth; thus a visit to a dentist would be desirable. A Turkish bath taken occasionally would be highly beneficial. Trusting that the above may be of some help,

I am, Sirs, yours truly.

March 30th, 1887. T. J. LAVERS, M.D., &c.

THE INTERNATIONAL MEDICAL CONGRESS.

To the Editors of THE LANCET.

SIRS,—I take the liberty of addressing you for the purpose of making a suggestion about the forthcoming International Medical Congress in Washington. If I remember aright, when the British Association met at Montreal a few years since the Canadian and American railways gave free passes over their lines to all members who had come from Europe. I think that if the American railway companies could be induced to grant a similar privilege to foreign medical men attending the Congress in September it would result in largely increasing the attendance, and would be an immense boon to many doctors of limited means, who otherwise would be debarred from visiting America. From what I know of the large-minded generosity of the American people, I am sure that if the matter were once laid before the directors of the principal American lines they would accede to the request without hesitation.

I am, Sirs, your obedient servant,

April, 1887. M.B.

Mr. T. Nixon.—Information may be obtained at the office of the Crown Agents for the Colonies, Downing-street.

CLIMATE OF RED BLUFF, CALIFORNIA.

To the Editors of THE LANCET.

SIRS,—I should be obliged could you or any of your readers give me some information concerning the climate of Red Bluff, California (lat. 40° N., long. 122° W.), especially as to its suitability to a patient with delicate chest and tendency to fibroid phthisis.

I am, Sirs, yours faithfully,

April 2nd, 1887. F.R.C.S.E.

COMMUNICATIONS not noticed in our present number will receive attention in our next.

COMMUNICATIONS, LETTERS, &c., have been received from—Dr. Saundby, Birmingham; Dr. A. L. Gihou, Villejo; Mr. Godlee, London; Mr. S. Snell, Sheffield; Mr. F. T. Simson, London; Dr. G. Fischer, Jena; Dr. F. A. A. Smith, Cheltenham; Mr. C. S. Jeaffreson, Newcastle-on-Tyne; Mr. Coles, London; Mr. L. Jefferis, Margate; Mr. T. Jones, Manchester; Mr. C. D. Christmas, Clapham; Messrs. Burroughs and Wellcome, London; Mr. W. R. Macdermott, Newry; Dr. Norman Kerr, London; Dr. C. S. Watson, London; Mr. Stamford, Tunbridge Wells; Mr. J. R. Phillips, Aughnacloy; Mr. J. Allen, Belper; Mr. J. Spitzly, Paramaribo; Dr. Batterbury, Berkhamsted; Mr. H. Kesteven, London; Mr. W. J. Jeaffreson, Folkestone; Rev. J. W. Atkinson, London; Dr. W. Pasteur, London; Mr. E. F. Grün; Mrs. Heatherby, London; Dr. Hilliard, Aylesbury; Mr. Bischof, London; Dr. Braxton Hicks, London; Mr. F. Page, Newcastle-on-Tyne; Messrs. Steel and Jones; Mr. H. J. Moxon, Anerley; Mr. Buée, Slough; Mr. Wickham Barnes, London; Dr. J. T. Graham, Perth; Mr. G. Wale; Mr. Rix, Bradford; Dr. Kapteyn, Alcoude; Mr. Porter, Fleetwood; Mr. C. Roberts, London; Mr. J. Fleming, Glasgow; Mr. Plowright, King's Lynn; Mr. C. Aitken, St. Mawes; Dr. M'Clure, Cromer; Mr. Vacher, Birkenhead; Mr. Rees, Cambridge; Mrs. Tucker, London; Mr. Brain, London; Mr. Taylor, Windermere; Mr. Sotheran, York; Mr. Buckle, Tolleshunt D'Arcy; Mrs. Thomson, Highgate; Miss Nutter, Wakefield; Mr. Harris, Homburg; Mr. Warrener, Walthamstow; Dr. Luke, Hanwell; Mr. Kirby, Leeds; Mr. Young, Poona; Messrs. Benjamin and Co., London; Mr. Hunt, Hull; Mr. Fuge, Taunton; Messrs. Dale and Co., London; Mr. Godrich, Kingston-on-Thames; Messrs. Christy and Co., London; Mr. Hope, London; Mr. Thompson; Dr. Buchanan, Glasgow; Mrs. Pratt, Cardiff; Dr. Hunter, Matlock; Messrs. Wright and Co., Birmingham; Mr. Mackenzie, Ryde; Messrs. Armbrecht and Co., London; Mr. Maw, Bradford; Mr. Moore, Coventry; Mr. Julian Willis, London; Dr. Watson, Bournemouth; Mr. Roulston, Wakefield; Mr. T. Nixon, Lincoln; Mr. R. James, Bagshot; Mr. H. T. Rutherfoord, London; The Inspector-General of Recruiting; Justice; A Doctor of Medicine; Felix; Real Rank; M.B.; F.R.C.S.E.; A Perplexed Surgeon; Surgeon; Upper Blade; A. B., Southampton; A One-eyed Engine-driver; Justitia; Another M.D.; M.D.Lond.; Junior; A very old Subscriber; Junior; M.R.C.S.

LETTERS, *each with enclosure*, are also acknowledged from—Dr. Barr, Glasgow; Mr. Heddy, Kensington; Mr. Heap, Hanley; Messrs. Lee and Martin, Birmingham; Mr. Smith, Kinnetty; Mr. Fletcher, Cross Hills; Mr. Cummin, Dublin; Mr. Shaw; Messrs. Oppenheimer and Co., London; Mr. Goodall, Crieff; Mr. Harris, Hamburg; Messrs. Cox and Co., Brighton; Mrs. Temple, Kington; Mr. Blandford, Stockton-on-Tees; Mr. Barnascom, Plymouth; Mr. Hooke; Mr. Warner, South Kensington; Mr. Read, Canterbury; Mrs. Spencer, Ealing; Mr. Pace, Newcastle-on-Tyne; Mr. Morton, Manchester; Mr. Stevens, Nottinghill; Mr. Trestraille, Aldershot; Mr. Anderson, Loftus; Mr. Hodges, Gloucester; Mr. Montgomerie, Glasgow; Mr. Smith, Holloway; Mr. English, Belfast; Beta, Hull; A. K. B., Surbiton; Probe; M.D., Bath; J. H. M.; H. C. A.; Rusticus; T. H. B., Lambeth; Sigma, Northampton; F. L. S.; Chirurgicus

Hospital Gazette, Scottish News, Derby Mercury, Blackpool and Fleetwood Gazette, Blackpool Herald, Torquay Directory, Southport Visiter, Leeds Evening Express, Glasgow Herald, Walsall Observer, &c., have been received.

Medical Diary for the ensuing Week.

Monday, April 11.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, 10.30 A.M., and each day at the same hour.
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1.30 P.M., and each day at the same hour.
CHELSEA HOSPITAL FOR WOMEN.—Operations, 2.30 P.M.; Thursday, 2.30.
ST. MARK'S HOSPITAL.—Operations, 2 P.M.; Tuesday, 2.30 P.M.
HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M., and on Thursday at the same hour.
METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.
ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.
CENTRAL LONDON OPHTHALMIC HOSPITALS.—Operations, 2 P.M., and each day in the week at the same hour.
MEDICAL SOCIETY OF LONDON.—8.30 P.M. Easter Monday. No meeting.

Tuesday, April 12.

GUY'S HOSPITAL.—Operations, 1.30 P.M. and on Friday at the same hour. Ophthalmic Operations on Monday at 1.30 and Thursday at 2 P.M.
ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 4 P.M.; Friday, 2 P.M.
CANCER HOSPITAL, BROMPTON.—Operations, 2.30 P.M.; Saturday, 2.30 P.M.
WESTMINSTER HOSPITAL.—Operations, 2 P.M.
WEST LONDON HOSPITAL.—Operations, 2.30 P.M.
ST. MARY'S HOSPITAL.—Operations, 1.30 P.M. Consultations, Monday, 1.30 P.M. Skin Department, Monday and Thursday, 9.30 A.M.
ROYAL MEDICAL AND CHIRURGICAL SOCIETY.—8.30 P.M. Dr. J. J. Pringle: A case of Aneurysm of the Abdominal Aorta treated by Laparotomy and the Introduction of Steel Wire into the Sac.—Dr. William Henry White and Mr. Pearce Gould: A case of Sacculated Aortic Aneurysm treated by the Introduction into the Sac of thirty-two feet of Steel Wire.

Wednesday, April 13.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.
MIDDLESEX HOSPITAL.—Operations, 1 P.M.
ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour. Ophthalmic Operations, Tuesday and Thursday, 1.30 P.M. Surgical Consultations, Thursday, 1.30 P.M.
ST. THOMAS'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour.
LONDON HOSPITAL.—Operations, 2 P.M.; Thursday & Saturday, same hour.
GREAT NORTHERN CENTRAL HOSPITAL.—Operations, 2 P.M.
SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2.30 P.M.
UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; Saturday, 2 P.M. Skin Department, 1.45 P.M.; Saturday, 9.15 A.M.
ROYAL FREE HOSPITAL.—Operations, 2 P.M., and on Saturday.
KING'S COLLEGE HOSPITAL.—Operations, 3 to 4 P.M.; Friday, 2 P.M.; Saturday, 1 P.M.
CHILDREN'S HOSPITAL, GREAT ORMOND-STREET.—Operations, 9 A.M.; Saturday, same hour.
EPIDEMIOLOGICAL SOCIETY OF LONDON.—8 P.M. Dr. Michael Taylor: The Presence of Mould Fungi in connexion with Diphtheria.
HUNTERIAN SOCIETY.—8 P.M. Mr. T. Mark Hovell: The Treatment of Cystic Goitre (with patient).—Dr. Dundas Grant: (1) Epitheliома of the Larynx relieved by Tracheotomy; (2) Carcinoma of the Œsophagus perforating the Trachea.
BRITISH GYNÆCOLOGICAL SOCIETY.—8.30 P.M. Specimens will be shown by Drs. Edis, G. Granville Bantock, Fancourt Barnes, and others.—Dr. William J. Sinclair (Manchester): Missed Abortion.

Thursday, April 14.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M. Ophthalmic Operations, Friday, 1.30 P.M.
CHARING-CROSS HOSPITAL.—Operations, 2 P.M.
NORTH-WEST LONDON HOSPITAL.—Operations, 2.30 P.M.

Friday, April 15.

ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

Saturday, April 16.

MIDDLESEX HOSPITAL.—Operations, 2 P.M.

SUBSCRIPTION.

POST FREE TO ANY PART OF THE UNITED KINGDOM.

One Year ..... £1 12 6 | Six Months £0 16 3
To CHINA AND INDIA ..... One Year 1 16 10
To THE CONTINENT, COLONIES, AND UNITED STATES ..... Ditto 1 14 8

Post Office Orders should be addressed to JOHN CROFT, THE LANCET Office, 423, Strand, London, and made payable at the Post Office, Charing-cross.

Notices of Births, Marriages, and Deaths are charged five shillings.

Cheques to be crossed "London and Westminster Bank."

ADVERTISING.

Books and Publications (seven lines and under) ...	£0 5 0
Official and General Announcements	0 5 0
Trade and Miscellaneous Advertisements	0 4 6
Every additional Line	0 0 6
Front Page ... ... per Line	0 1 0
Quarter Page	1 10 0
Half a Page	2 15 0
An entire Page	5 5 0

The Publisher cannot hold himself responsible for the return of testimonials, &c., sent to the office in reply to advertisements; copies only should be forwarded.

NOTICE.—Advertisers are requested to observe that it is contrary to the Postal Regulations to receive at Post-offices letters addressed to initials only.

An original and novel feature of "THE LANCET General Advertiser" is a special Index to Advertisements on page 2, which not only affords a ready means of finding any notice, but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to Advertisements appearing in THE LANCET.

Terms for Serial Insertions may be obtained of the Publisher, to whom all letters relating to Advertisements or Subscriptions should be addressed.

Advertisements are now received at all Messrs. W. H. Smith and Son's Railway Bookstalls throughout the United Kingdom and all other Advertising Agents.

Agent for the Advertising Department in France—J. ASTIER, 66, Rue Caumartin Paris.